

## Revised Instructions for Applying EBONITE BLACKFACE PROCESS

**Please Read Carefully and Completely**

The following detailed instructions should be read carefully and completely and followed closely in order to obtain the best results. Points which require close attention:

- Proper amount of ammonia**
- Full strength of ammonia**
- Proper temperature of water**
- Thorough cleaning of matrices**
- Both solution and mats must be cool**

### Materials Required

- |   |                                      |
|---|--------------------------------------|
| 1 set Ebonite chemicals                                 | Ebonite Reference Color              |
| 16 fl. oz. strong ammonia,<br>28% strength (drug store) | Camelhair brush, No. 6               |
| Rubber bands, 1/8 x 1/16 x 2                            | Stiff plastic bristle scrub<br>brush |
| 3 Flat-bottom plastic trays                             | Plastic gloves                       |
| Gritty scouring powder, such as Old Dutch or Ajax.      |                                      |
| Powdered pumice, Grade 1F, from paint store.            |                                      |

Ammonia cannot be mailed; buy it from your druggist—he can get fresh from his jobber in a day or two. **Be sure to get 28% concentration. Insist on fresh, sealed bottles.**

NOTE: Measures are U. S. Standard. Where other than U. S. measures prevail, use the following conversion ratios:

- 1 pint U. S. or 16 fl. oz. U. S. = 16.7 oz. British = 473.6 cc:
- 1 gal. U. S. = 5/6 gal. British = 3.785 liters

155° F. = 70° C.

### Preparing Ebonite Solution

**1**—Warm a gallon jug with hot water, empty, and put in about 12 oz. *hot* water, 155°F. (If water is heated in a pan, the correct temperature will be when numerous bubbles collect around the sides and bottom, but *not boiling*).

**2**—Add one package Chemical “A” (green powder); shake.

**3**—Add 16 fl. oz. (one pint) strong ammonia, shake up, let stand a few minutes, shake again. When pouring the strong ammonia into the jug, work in good ventilation.

**4**—Add cold water to gallon mark, add one package Chemical “B” and one package Chemical “C” while the solution is still spinning from agitation. Shake up and let stand until COLD, then give final shake to mix solution. It is not necessary to shake the solution before use. There will be an excess of the green chemical which settles to the bottom of the jug. This green sediment will gradually turn black over a period of a few days, but if it turns black before the solution has cooled it is usually an indication that the water was too hot. A yellowish-black color may result.

When not in use, store in a cool, dark place and keep tightly stoppered to avoid loss of activity. Solutions prepared and stored as recommended have retained full activity for more than four years to date.

### Preparatory Cleaning

**5**—In order to produce uniformly excellent results it is absolutely essential that the face of the mats be thoroughly cleaned. If this is properly done, a dense, hard, jet black is created by Ebonite solution, but if the cleaning is slighted results will likely be unsatisfactory or short-lived. The reason for the necessity of this cleaning lies in the formation in



the pores of the brass of what might be called a "varnish" film resulting from the oxidation and polymerization of residual oils from manufacture, from machine contacts, and especially from operators' fingers. Since Ebonite solution is very mild in chemical nature, it is necessary that this film be removed in order for Ebonite to do its work properly.

Some processes use acid to remove the film, but acid at the same time removes some of the alloy and there is the constant danger of etching sidewalls or letter punch with consequent ruin of the matrices. The method of cleaning recommended by Ebonite eliminates this danger, since **only water and scouring powder are used, with the addition of powdered pumice to speed the work.** While the pumice is not essential, it will greatly facilitate cleaning, especially since the scouring powders now on the market use a much finer grit than formerly. We strongly recommend the use of Grade 1F powdered pumice mixed half and half with a good cleanser. The pumice can be obtained at most paint stores. The dental grade sold by druggists is too fine to be effective.

Collect the matrices into bundles about 25 picas long and pass a special rubber band twice around the bundle through the combination and around the bottom. The bundles must be tight to prevent scouring powder from lodging between the mats. Place strips of 12 pt. or 18 pt. base material on a double galley, and rest the bundles on the strips to compensate for uneven wear of the lower lugs. Four rows can be accommodated on a double galley. Sprinkle *liberally* with the mixture of pumice and scouring powder, moisten *slightly*—just enough to form a thick creamy paste—and **scrub vigorously.** After a time, shift the end bundles to the center of the rows and continue scrubbing. Add more of the scouring mixture as required. **Do not skimp this operation—a couple of extra minutes of work here may save re-treatment.** When confident that all "varnish" has been removed, wash very **thoroughly** under running cold water to eliminate all traces of soap and grit, especially between the lugs and in the combinations. Allow to drain briefly.

The rubber bands which we furnish are of special composition designed to resist as far as possible the disintegrating action of ammonia. Use of hot water on the bands while under tension will cause excessive breakage. Cold water for washing and rinsing is equally effective, protects the bands from breakage, and assures that the mats will be cool for proper action of Ebonite solution, which is far more effective when cold.

If matrices have been cleaned in the past by use of a dip containing chromic or similar acids, the constitution of the surface molecules will have been altered and it may be necessary to scrub a second time and re-treat with Ebonite to attain a satisfactory and durable black. A light yellow color of the brass is usually evidence that such acid dip has been used, and the face of the letter punch commonly also shows a frosted appearance under a magnifier as a result of the etching. Matrices which have been cleaned by severe or repeated buffing likewise may require re-treatment because such buffing "flows" the surface molecules of the brass and causes microscopic (or larger) pits which are extremely difficult to clean properly.

### **Ebonizing Procedure**

**6**—Place bundles of matrices in trays *reference side down*, then, avoiding splashing, pour Ebonite solution into the trays to a depth just sufficient to reach the reference face of all mats (5 ozs. is sufficient). Rock trays gently from end to end to eliminate air bubbles which may have been trapped underneath the bundles.

**7**—When the matrices have been in the solution for half a minute or so, remove the bundles and stand on a galley with the combinations up for 15 or 20 seconds, then return to the *same* solution. Tilt the trays end to end to eliminate air bubbles. Allow the matrices to remain in Ebonite solution for about 15 minutes, then remove and *rinse at once in cold water*, following by thorough washing under running water to remove the last traces of chemicals. Occasionally a slight greenish deposit may show around the combination after drying. This is completely harmless, and is not corrosion, but simply traces of the solution which have not been removed. **Matrices should not be allowed to remain in the solution more than 20 minutes**, since extra time will not improve an unsatisfactory color but will result in an increase in the green deposit on the combinations.

~~The solution used for Ebonizing one tray of mats should not be used a second time, since it is weakened by use and results of the second lot are almost certain to be poor.~~

**8**—When washed clean, stand bundles of mats on a galley with the combination up to drain, and direct a jet of air into the combinations and on other surfaces to blow off as much water as possible. Remove rubber bands and place mats on a galley, face up. With the air jet, fan the mats to remove water from between them. If air is not available, use of a vacuum cleaner type blower will help. Bundles may be placed on pads of newspapers, combinations up, and allowed to dry over-night. Warming will hasten drying. For fast drying in absence of compressed air, remove bands, place loose mats in rows in tray, and run *very hot* water through tray until mats are hot. Stack on pads of newsprint with combinations up. Usually dry in 30 to 45 minutes.

**9**—Replace strips of base under the mats, rub the reference face with a damp cloth to remove sediment which might discolor the Reference Color. Polish with a dry cloth.

**10**—Apply Ebonite Reference Color with a No. 6 camel-hair brush which has the bristles cut off square at about 3/16 inch long. Dip the brush into the color, hold perpendicular to the face of the string of mats and brush the color on sparingly and gently, but make certain that all letters are well filled. Use of too much color on the brush, and too much pressure, will force excessive color between the mats. Allow to dry for 10 or 15 minutes, then rub off excess with a non-fuzzy dry cloth. Mats having beveled edges on the face, where color will be deposited, can be tipped sideways in the galley so that the unwanted color can be removed easily. Color which may have been forced between bent mats need not be removed, since it does not cause the mats to stick together, and will soon disappear in use.

**11**—Since perspiration is often acid in nature, it is possible that damage may be done to the film of Ebonite over a period of time. To minimize this possibility, a tin of Silicone-Wax Compound is furnished with each kit. By virtue of its silicone content, this compound offers maximum protection against damage by acid perspiration. Apply a small amount of the wax compound to a 2-inch square of cloth, roll between the fingers to distribute evenly, and then rub the entire face of the mats. Polish briskly with dry cloth. Do not use an excess.

In some instances, due to dirt in the machine, the reference letters may become soiled. To clean, wipe gently with a piece of *art gum*, which will pick up the dirt from the letters without harming the Ebonite.

**Reddish-Brown Color**—A reddish-brown color sometimes develops and persists even through long immersion in



Ebonite solution. This condition may be most noticeable near the lugs, and is evidence that the "varnish" film has not been completely removed. To correct, rinse out all Ebonite solution and repeat the scrubbing operation. Then treat the mats as above, using a tray of *fresh solution*. A reddish color will be encountered most often in the case of old mats and pi mats which have been handled a great deal or which have been buffed for cleaning, and also in the case of comparatively little used mats which have lain in trays for long periods.

**Iridescent or Bluish-Black**—An iridescent or bluish-black color which shows *after the mats have been washed and dried* is evidence of improper compounding of the Ebonite solution. It is commonly caused by weak solution resulting from the use of insufficiently hot water or weak ammonia. Do not confuse this with the bluish cast which shows while the mats are still wet with the deeply blue Ebonite solution.

**Protect Casting Face**—Experiments indicate that no harm results when the casting face and sidewalls are Ebonized, since the reaction is but a few microns deep, but it looks bad, and it may be difficult to convince others of the absence of harm to the matrices. Therefore, avoid splashing the Ebonite solution onto the casting face.

### LUDLOW MATRICES

When Ebonizing Ludlow matrices several points must be kept in mind. Since there are no lugs on the face to separate the mats from the bottom of the trays, it is necessary to use trays which have ridges on the bottom. The trays furnished by Ebonite have such ridges. In many instances the reference letters on Ludlow matrices are very shallow, and in most cases all letters are quite completely filled with a black ink or paint. This must be removed if Ebonite Reference Colors are to be used. Removal is comparatively easy through the use of ink-remover solvent and a small fine-bristled brass "suede" brush. Prepare a pad of two or three layers of cloth to place on a galley. Soak with ink remover and put bundles of mats face down on the pad. When ink in the letters has softened, scour with a rotary motion with the fine brass brush and additional "dynamite" until the letters are clean. Scrub with cleanser as in the case of linotype mats, treat with Ebonite solution.

Because of extensive handling, Ludlow mats will usually be found to have absorbed considerable oil and therefore are often more difficult to clean.

After the mats have been scrubbed, make sure the bundles are straight, then place *crosswise of the ribs* in the trays, add Ebonite solution. After a few seconds move the bundles slightly to allow the solution to reach all parts of the face. Repeat the moving of mats from time to time during the immersion in Ebonite solution. Complete the processing as outlined for linotype mats.

**CAUTION:** Ebonite Solution is classed as poisonous. Do not take internally; avoid contact with skin; avoid breathing fumes.

**GUARANTEE:** When used as directed this process will produce a durable black color comparable to the sample furnished. However, since the materials are used under conditions beyond our control, no guarantee of any sort, express or implied, is or can be given. We will provide every possible advice and assistance to the end that complete satisfaction results.

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