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810 METALPHOTO PLATES

From time to time difficulties in processing Metalphoto plates may be encountered. Most of the time such difficulties are caused by fairly simple deviations from standard processing techniques. Below are listed several of the most commonly encountered processing problems with an indication of probable sources for the problem. Should difficulties still exist after considering this material, contact your local Metalphoto sales representative or our home office in Cleveland for further help.

811 Fog in background (non-image) area of plate.

1. **Check film.** Note especially if any opaque marks on the film correspond to clear marks on the processed Metalphoto plate. If so, this indicates that only the opaqued areas on the film are holding back the light used for exposure. The remaining black areas on the film are too weak and allow light to pass through to the plate. This means that the film used for exposure is underexposed or underdeveloped. If a number of exposures are to be made with the film, it would be best to remake the film with proper exposure and development. If only one or two exposures are to be made, try reducing exposure time. Recheck Section 276 on film density.
2. **Check the area used for storage of opened pouches of unexposed plates.** Be sure that the pouches are sealed properly and that these stored plates are not accidentally being exposed while other plates are being exposed on the vacuum frame. Be certain plates have not been stored in cardboard film or photographic boxes. Recheck Section 320 on proper storage and handling of unexposed quartz lamp at a distance of plates.
3. **Make sure plates are fixed.** A strong indication of incomplete fixing is the appearance of a yellow-tan stain on the plate after sealing. Make certain that the fixer is clean (no yellow solid from decomposition) and that all rolls on the Zip Processor are completely wet. Recheck Sections 413-415 on proper fixing.
4. **Check temperature of processing chemicals.** Recommended chemistry temperature is between 68°F and 72°F (20°C - 22°C).
5. **Determine if the darkroom has "safe" lighting conditions**. With the safelights on, remove a fresh, unexposed plate from a pouch, cut off a portion for testing and place it on the vacuum frame with the good, sensitive side facing up. Place several coins on the surface. After 5 minutes, remove the coins and Zip process the plate. If the outline of the coins is visible on the processed plate, the darkroom conditions are not good enough to avoid pre-exposing plates prior to processing. Recheck Section 311 on safelight requirements.
6. **Saving developed and fixed but unsealed Metalphoto plates with background fog.** Prepare Kodak Farmer's Reducer according to package instructions. Incline plate near a spray rinse. Sponge Farmer's Reducer over entire plate and immediately remove with spray rinse. Alternately sponge and spray until background clears.

812 Weak image - Areas of the processed plate which should appear black are either gray or brown.

1. **Increase exposure.** Remember that large areas of black typically require 30 seconds exposure from a 650 watt

24 inches. If this distance is doubled, the exposure time must be *quadrupled* just to match the same total exposure. If by increasing the exposure to the proper level, background fog is created, recheck Section 276 on proper film density.

2. **Make sure fixer is completely removed from the plate immediately after Zip processing.** Bleaching of the image occurs if fixer remains in contact with the plate. Simply placing processed plates into a tank of stagnant rinse water results in accumulation of fixer in the rinse. Recheck Section 414 on proper rinsing after fixing.
3. **Check the procedure used after Zip processing but before sealing.** If wet, unsealed plates are stacked against each other bleaching will occur. Similarly, allowing unsealed plates to remain in water for prolonged periods before sealing may bleach the black areas. Recheck Section 414 for proper plate handling prior to sealing.
4. **Check film.** Are the clear areas of the film completely clear? Expose a portion of a plate for 30 seconds without any film and process it. If the color of the plate is now acceptable, the film used is fogged and must be replaced. Recheck Section 276 on proper film density.
5. **Check the sealing process.** If sealed plates have a large amount of surface residue or "smut", the sealing bath must be changed. Make sure that plates are immersed for 10 minutes in the sealing bath at a rolling boil. Recheck Section 600 for proper sealing techniques.
6. **Make sure the development is proper.** All rolls in the Zip Processor must be completely wet and the temperature of the chemicals should be at least 68°F into fixer and apply to a dark spot. Dip (20°C). Recheck Sections 413-414 on proper Zip processing.
7. **Make sure chemistry is fresh.** Weak or expended chemistry can cause weak images. Recheck Section 414 on life of chemistry.

813 Dark spots or streaks - Dark lines or spots which are most noticeable in clear areas of the plate.

1. **Check cleanliness of Zip Processor rolls.** Process a plate through the Zip Processor so that the direction of travel is parallel to the grain. Now process a second plate so that the direction of travel is perpendicular to the grain. If the streaks in both cases are parallel to the direction of travel through the Zip Processor, the Zip Processor is probably dirty and should be cleaned. Recheck Section A-102 on maintenance of Zip Processors.
2. **Check film.** If defects consistently appear in the same area of the imaged plate from a given negative, the film is probably faulty. Recheck Section 413 on proper processing of film.
3. **Check fixing.** Make certain that fixer rolls are completely wet. Recheck Section 414 on proper fixing.
4. **Check storage of unexposed plates.** If defects consistently appear in the same area of the plate, regardless of the film used, examine the storage pouch for holes. Also check the type of tape used to seal pouches. Recheck Section 320 on proper storage of unexposed material.
5. **Saving developed and fixed but unsealed Metalphoto plates with dark spots.** Prepare a small quantity of both potassium ferricyanide and Metalphoto Zip Fixer. Place a dry plate in a flat position. Dip one end of a cotton swab

the other end of the swab into potassium ferricyanide and apply to the dark spot. Alternately apply both ends of the swab until the spot disappears. Wipe with a damp sponge or spray rinse to remove chemicals.

IMPORTANT: The area where the spot was removed may appear brighter than the rest of the background. This means that a light background fog was present on the plate. Refer to Problem 811 for a method of removing background fog.

814 Light spots or streaks - Lightly colored or silver areas of a processed plate that should have been black.

1. **Verify cleanliness of film and exposure station.** Dust or dirt between the light source and the plate being exposed can reduce or eliminate proper exposure light. Check for opaque on the film where it doesn't belong, opaque on the exposure glass or plastic hold down.
2. **Check plate cleanliness.** Try spray rinsing and blowing dry a plate, then brushing with a static eliminator brush before exposure.
3. **Make sure fixer or bleach is not accidentally splashing on plates.** Spots produced in this fashion normally appear as blotches rather than well-defined lighter areas.
4. **Check cleanliness of Zip Processor.** Remove developer rolls, rinse with water and check to see if the rolls feel gritty. If so, use a ScotchBrite pad to clean them. Also make sure that the rolls "wet" evenly over their entire surface. Blotching or uneven wetting is a sign of oil or grease. Recheck Section A-102 on proper cleaning of Zip Processor.

815 Yellow-tan stain - Areas of processed and sealed plate that should be silver are yellow or tan.

1. **Check fixing process.** The sealing solution is designed to discolor any portion of a plate which has not been adequately fixed.
2. **Check sealing process.** If the color is uniformly yellow over the entire plate, the plate may be incompletely sealed. Check for completeness of sealing by placing a few drops of iodine solution, such as red tincture of iodine, for 5 minutes on a black area of the plate outside the image area . Rinse and examine the plate for additional staining from the iodine. A completely sealed plate will not show evidence of the iodine treatment. Wet the plate with water. If the silver portion of the plate appears less yellow when wet, the plate is incompletely sealed. Recheck Section 600 for proper sealing process.
3. **Examine quality of sealing bath.** If more than the equivalent of 75, 10" x 12" plates per gallon of solution have been sealed, it is time to change the bath. Also, if the sealing bath has been used for sealing colored plates, it may be contaminated with dye. Recheck Section 600 on proper sealing.

830 PRE-DYED METALPHOTO PLUS PLATES

From time to time, difficulties in processing Pre-Dyed Metalphoto Plus plates may be encountered. Most of the time such difficulties are caused by fairly simple deviations from standard processing techniques. Below are listed several of the most commonly encountered processing problems with an indication of probable sources for the problems. Should difficulties still exist after considering this

material, contact your local Metalphoto sales representative or our home office in Cleveland for further help.

831 Color appears to be drab or dirty.

1. **Check film.** Note especially if any opaque marks on the film correspond to clear marks in the colored areas of the processed Pre-Dyed Metalphoto Plus plate. If so, this indicates that only the opaqued areas on the film are holding back the light used for exposure. The remaining image areas on the film are too weak and allow light to pass through to the plate. This means that the film used for exposure is underexposed or underdeveloped. Because of the long exposures to ultraviolet light required by this product, we recommend that any underexposed or underdeveloped film be remade with proper density. Recheck Section 276 on film density.
2. **Check the area used for storing opened pouches of unexposed plates. Be** sure that the pouches are sealed properly and that the stored plates are not accidentally being exposed while other plates are being exposed. Recheck Section 320 on proper storage of unexposed plates.
3. **Make sure plates are fixed.** Pre-Dyed Metalphoto Plus plates are pre-colored and do not easily show the typical characteristic yellow-tan stain (after sealing) of incomplete fixing. Follow proper fixing guidelines to avoid problems. Make certain that the fixer is clean (no yellow solid from decomposition), that all rolls on the Zip Processor are completely wet, and that the temperature of the processing chemicals is between 68° and 72°F (20°-22°C). Recheck Section 423 on other, bleaching will occur. proper fixing.
4. **Determine if the darkroom has "safe" lighting conditions.** With the safelights on, remove a fresh unexposed plate from a pouch and cut off a section and place it on the vacuum frame with the good, sensitive side facing up. Place several coins on the surface. After 5 minutes, remove the coins and Zip process the plate. If the outline of the coins is visible on the processed plate, the darkroom conditions are not good enough to avoid pre-exposing plates prior to processing. Recheck Section 311 on safelight requirements.

832 Weak image - Areas of the processed plate which should appear black are either gray or brown.

1. **Increase exposure.** Remember that large areas of black typically require exposure of 120 seconds for red and 60 seconds for other colors of Pre-Dyed Metalphoto Plus from a 650 watt quartz light at a distance of 24 inches. If this distance is doubled, the exposure time must be ***quadrupled*** just to match the same total exposure. If background fog condition is created by increasing exposure to the proper level, recheck Section 276 on proper film density.
2. **Make sure fixer is completely removed from the plate immediately after Zip processing.** Bleaching of the image occurs if fixer remains in contact with the plate. Simply placing processed plates into a tank of rinse water results in accumulation of fixer in the rinse. Recheck Section 424 on proper rinsing after fixing.
3. **Check the procedure used after Zip processing but before sealing.** If wet, unsealed plates are stacked against each

Similarly, allowing unsealed plates to remain in water for prolonged periods before sealing may bleach the black areas and may also leach color from the pre-colored areas. Recheck Section 414 for proper plate handling prior to sealing.

4. **Check film.** Are the clear areas of the film completely clear? Recheck Section 276 on proper film density.
5. **Check the sealing process.** If sealed plates have a large amount of surface residue or "smut," the sealing bath must be changed. Make sure that plates are immersed for 10 minutes in the sealing bath at a rolling boil. Recheck Section 600 for proper sealing technique.
6. **Make sure the development process is proper.** All rolls in the Zip Processor must be completely wet and the temperature of the chemicals should be at least 68°F (20°C). Recheck Section 424 on proper Zip processing.

833 Dark spots or streaks - Dark lines or spots which are most noticeable in colored areas of the plate.

1. **Check cleanliness of Zip Processor rolls.** Process a plate through the Zip Processor so that the direction of travel is parallel to the grain. Now process a second plate so that the direction of travel is perpendicular to the grain. If the streaks in both cases are parallel to the direction of travel through the Zip Processor, the Zip Processor is probably dirty and should be cleaned. Recheck Section A-102 on maintenance of Zip Processors.
2. **Check film.** If defects consistently appear in the same area of the imaged plate from a given negative, the film is probably faulty. Recheck Section 276 on proper processing of film.
3. **Check fixing.** Make certain that fixer rolls are completely wet. Recheck Section 424 on proper fixing.
4. **Check storage of unexposed plates.** If defects consistently appear in the same area of the plate, regardless of the film used, examine the storage pouch for holes. Recheck Section 320 on proper storage of unexposed material.
5. **Check to see that pouch was resealed with proper tape, transparent cellophane tape or black electrical tape.**

834 Light spots or streaks - Lightly colored areas of a processed plate that should have been black.

1. **Verify cleanliness of film and exposure station.** Dust or dirt between the light source and the plate being exposed can reduce or eliminate proper exposure light. Check for opaque on the film where it doesn't belong.
2. **Check plate cleanliness.** Try spray rinsing and blowing dry a plate, then brushing with a static eliminator brush before exposure.
3. **Make sure fixer or bleach is not accidentally splashing on plates.** Spots produced in this fashion normally appear as blotches rather than well-defined lighter areas.
4. **Check cleanliness of Zip Processor.** Remove developer rolls, rinse with water and check to see if the rolls feel gritty. If so, use a Scotch-Brite pad to clean them. Also make sure that the rolls are "wet" evenly over their entire surface. Blotching or uneven wetting is a sign of oil or grease. Recheck Section A-102 on proper cleaning of Zip Processor.

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835 Uneven color after sealing.

1. **Be sure all fixer is removed from the plate prior to sealing.** Traces of fixer left on the plate cause discoloration and thus color nonuniformity. Recheck Section 424 on proper rinsing after fixing.
2. **Make sure Pre-Dyed Metalphoto Plus plates are completely dry when they are placed in the sealing bath.** Those areas where the plates are wet will seal at a slower rate than the rest of the plate, causing uneven color in the final product.

836 The color of the plate appears to have faded after the sealing process.

1. **Make sure the sealing bath is at a rolling boil before the plates are immersed.**
2. **How many plates have been sealed per gallon?** Remember that 1 gallon of sealing solution will seal the equivalent of 30, 10" x 12" Pre-Dyed Metalphoto Plus plates before contamination creates a sealing problem.
3. **How many plates were sealed at one time?** Seal only 4 plates at a time to prevent a detrimental drop in sealing bath temperature. Reduced bath temperature causes some of the dye to leach from an Pre-Dyed Metalphoto Plus plate creating a faded look.

837 Sealed Pre-Dyed Metalphoto Plus plates are stained with gold, orange, or reddish discoloration.

1. **Check cleanliness of clips and rods used for sealing.** Remember that the clips and rods used to seal Pre-Dyed Metalphoto Plus plates can carry dye from the plates. They must be completely clean and dry prior to use.
2. **When processing red and gold Premersing them in bleach.** Wet plates **Dyed Metalphoto Plus plates at the same time, be sure to process the gold first and then the red.** This eliminates the possibility of red dye transfer from the Zip rolls to the gold Pre-Dyed Metalphoto Plus plates.

850 ULTRACOLOR PLATES

From time to time, difficulties in processing UltraColor plates may be encountered. Most of the time such difficulties are caused by fairly simple deviations from standard processing techniques. Below are listed several of the most commonly encountered processing problems with an indication of probable sources for the problem.

851 Color is not uniform on Pre-Dyed UltraColor plate.

1. **Check to make sure plates were WIPED DRY after the cleaning process.** If a wet, processed Pre-Dyed UltraColor plate is allowed to drain dry, water flowing slowly off of the plate can dissolve some of the dye causing streaks and blurred images.

852 Resist breaks down in exposed areas during the bleaching process.

1. **Check calibration of the exposure lamp.** Insufficient exposure of the plate prevents the developer from hardening exposed areas enough to withstand bleach.
2. **Check bleaching time.** If the plate is immersed too long in the bleach, the resist will deteriorate.
3. **Check temperature of developer and subsequent rinse water**. If warm developer (peroxide) or warm rinse water is used, the resist can soften at edges and allow bleach to attack exposed areas.
4. **Make sure plates are dry before im-**

are attacked more vigorously by the UltraColor Bleach.

853 Image won't develop.

1. **Check exposure.** Pre-Dyed UltraColor plates must produce 4 solid steps on a Stouffer 21Step Wedge.
2. **Check concentration and temperature of developer**. Use only 0.3 % hydrogen peroxide at temperatures below 72°F (22°C).

854 Color fades during sealing.

1. **Make sure UltraColor plates are completely dry when they are placed in the sealing bath.**
2. **Make sure the sealing solution is at a rolling boil *BEFORE* the plates are immersed.** This rolling boil must be maintained and plates must be immersed for 10 minutes.
3. **How many plates have been sealed per gallon?** Remember that 1 gallon of sealing solution seals the equivalent of 30, 10" x 12" UltraColor plates before contamination/depletion creates a sealing problem.
4. **How many plates were sealed at one time?** Seal only 4 plates at a time to minimize a detrimental drop in sealing bath temperature. Reduced bath temperature can cause some dye to leach from a plate causing a faded look.

870 BACKGROUND COLOR

The following section describes problems sometimes encountered in producing background colored plates. Identify your problem and follow the suggestions appropriate to the problem experienced before processing additional plates.

it is immersed in the Dye-N-Seal solution.

871 Background color is uneven before sealing.

1. **Be sure that all of the dye powder is dissolved.**
2. **Make certain that the fixer is completely rinsed from both sides of the plate and that the plate is completely dry before dyeing.**

872 Background color is too pale.

1. **Dye solution may be depleted.** Try a longer immersion time or use a freshly prepared solution.
2. **Does the pH of the dye solution need adjustment**?
3. **Make sure plates are dry after rinsing off fixer and before they are dyed**.
4. **Are you using a dye at room tempera- ture that should be heated**?

873 Background color is too dark.

1. **Reduce immersion time or dilute dye solution with more water.**
2. **Be sure that the dye solution is not contaminated with fixer.**
3. **Make sure that dyes requiring heating are not heated *ABOVE* the recommended temperature.**

874 Background color doesn't match earlier samples.

1. **Colors will vary slightly, especially if the comparison is with a different finish, thickness or product group.**
2. **Drastic color shifts usually indicate an improper pH, the wrong concentration or a decomposition problem with the dye solution.**

875 Dye-N-Seal color uneven.

1. **Make sure that the fixer is rinsed**

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2. **Make sure the Dye-N-Seal solution is at a rolling boil *BEFORE* the plates are immersed.** This rolling boil must be maintained and plates must be immersed for 10 minutes.
3. **How many plates were sealed at one time?**
   Dye-N-Seal a maximum of *4* plates at a time to prevent a detrimental drop in sealing bath temperature.

876 Dye-N-Seal does not produce a consistent color.

1. **Make sure all plates are completely dry before sealing.**
2. **Seal the same number of plates per batch (no more than 4) and always at a rolling boil for 10 minutes**.
3. **If plates processed earlier are deeper in color than later plates, the Dye-N-Seal solution may be depleted**.
   Recheck the number of plates processed per gallon. Approximately 30, 10" x 12" plates can be dyed per gallon of Dye-N-Seal. See Section 500.

890 SELECTIVE COLORING

The following section describes problems sometimes encountered while selectively coloring plates. Check the suggestions appropriate to the problem before processing additional plates.

891 InstaColor Resist coated plate does not

accept dye in unexposed areas.

1. **Resist may have been "baked" on by over heating the coated plate prior to exposure.** Use only warm air to dry coating.
2. **The resist coating may have been too thick.**
   not at a rolling boil during sealing.
   Dip coating: Be sure to cover trays or tanks of resist when not in use to prevent evaporation.
   Whirler coating: Whirler may be spinning too slowly to spread the resist thinly over the plate.
3. **Plate may contain contaminants such as oil or dirt which prevent dye penetration.**
4. **Film may be underexposed or underdeveloped.**
5. **Plate may not have been developed long enough or developing solution may be exhausted.** Subsequent rinsing can then "dry" resist into unexposed areas and protect them from dyeing.

892 InstaColor dyes penetrate exposed areas of resist coated plate.

1. **Plate may have been underexposed**. Remember, a properly coated, exposed and developed InstaColor plate produces approximately 7 steps on a Stouffer 21 Step Wedge.
2. **Developer solution may be old or depleted.** Make fresh peroxide solution daily.
3. **Developer solution may be warm.**
4. **Solvent for the dyes may contain water**.
5. **Resist coating may be too thin.**
6. **Resist coated plate was not completely dry before use**.

893 After removal of resist, colors "run" into areas which should not be colored.

1. **Do not allow plates to drain dry before sealing.** After resist removal and rinsing, immediately wipe plates dry.
2. **Plates were partially wet before sealing**.
3. **Sealing bath is either contaminated or**

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894 lnstaColor Dye does not completely dissolve.

1. **Improper solvent is being used**.
2. **Solvent contains water**. Always re-cap bottles of solvent and dye solutions immediately after use to prevent absorption of moisture.

895 Image does not develop on InstaColor Resist coated plate.

1. **Developer is too warm and is simply dissolving all of the resist.**
2. **Developer is not 0.3% peroxide solution.**
3. **Plate exposure was too short.**
4. **Coating of resist was not completely dry before use.**
5. **CoatIng of resist was too thin.**
6. **Exposure lamp does not emit ultraviolet radiation.**
7. **Resist-coated plates have been stored in excess of recommended shelf life.**
8. **Film density is too weak to retard exposure of the resist in the image area.**