KODAK VISION
Color Print Control Strips, Process ECP-2D

Technical Data and Crossover Information

Professional
Motion

Note: While the data presented are typical of production coatings, they do not represent standards which must be met by Kodak. Varying storage, exposure, and processing conditions will affect results. The company reserves the right to change and improve characteristics at any time.

Table of Contents

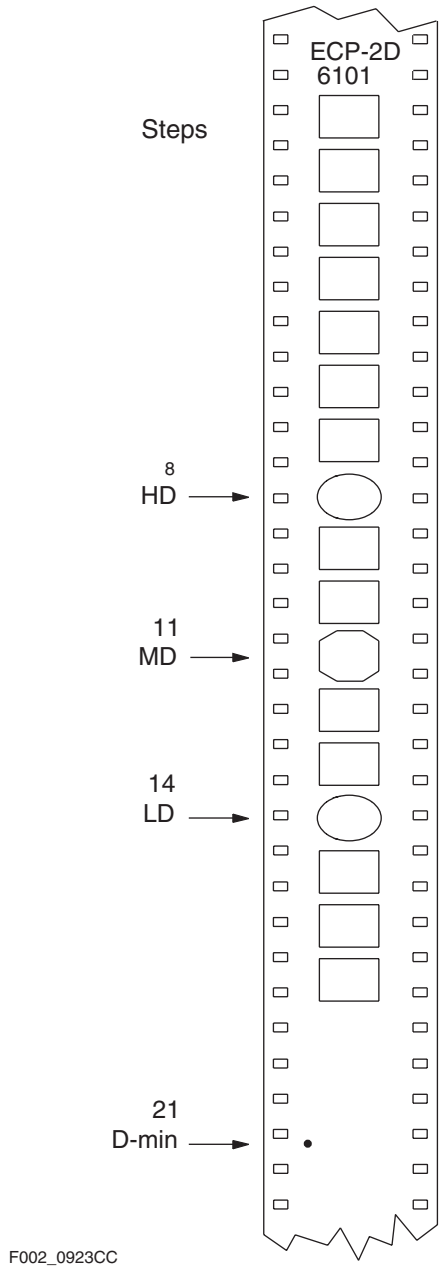
KODAK VISION Color Print Control Strips

Introduction

KODAK VISION Color Print Control Strips (Figure 1) are intended for the control of Process ECP-2D using the procedures described in KODAK Publication No. H-24, *Processing KODAK Motion Picture Films, Module 1, Process Control*.

The catalog numbers for KODAK VISION Color Print Control Strips are CAT 156 1323 for 35 mm, and CAT 820 8498 for 16 mm.

Figure 1 Processed Control Strip - 35 mm



KODAK VISION Color Print Control Strips

KODAK VISION Color Print Control Strips, Process ECP-2D, are packaged in 100-foot rolls containing at least 120 exposures and a processed reference strip. The exposures on the roll are spaced at 9.5-inch intervals. Each exposure has 21 gray-scale steps at 0.15 log H increments (1/2 camera stop).

The reference strip accompanying each roll was exposed along with all other control strips in the package; it was then processed under specified well-controlled conditions. **Keep the reference strip at room temperature in its envelope to help protect it from heat, light, and dirt.**An instruction sheet enclosed with the package contains process deviation (correction) factors, if they are required, to determine your laboratory process aim numbers. A four-digit code number appearing on the carton, can, control strips, reference strips, and instruction sheet, identifies each production batch of strips.

Please be aware no two batches of control strips are identical because of slight differences in product, exposures, process, etc. And therefore, the aim value numbers will not match (however, on rare occasions they could), even with the application of the deviation factors. **Beginning with batch codes 6101 (35 mm) and 6102 (16 mm), you may notice a shift in your aim values. IF you continue to be satisfied with the way your images look, simply cross over to the new aim values and continue processing as you have.**

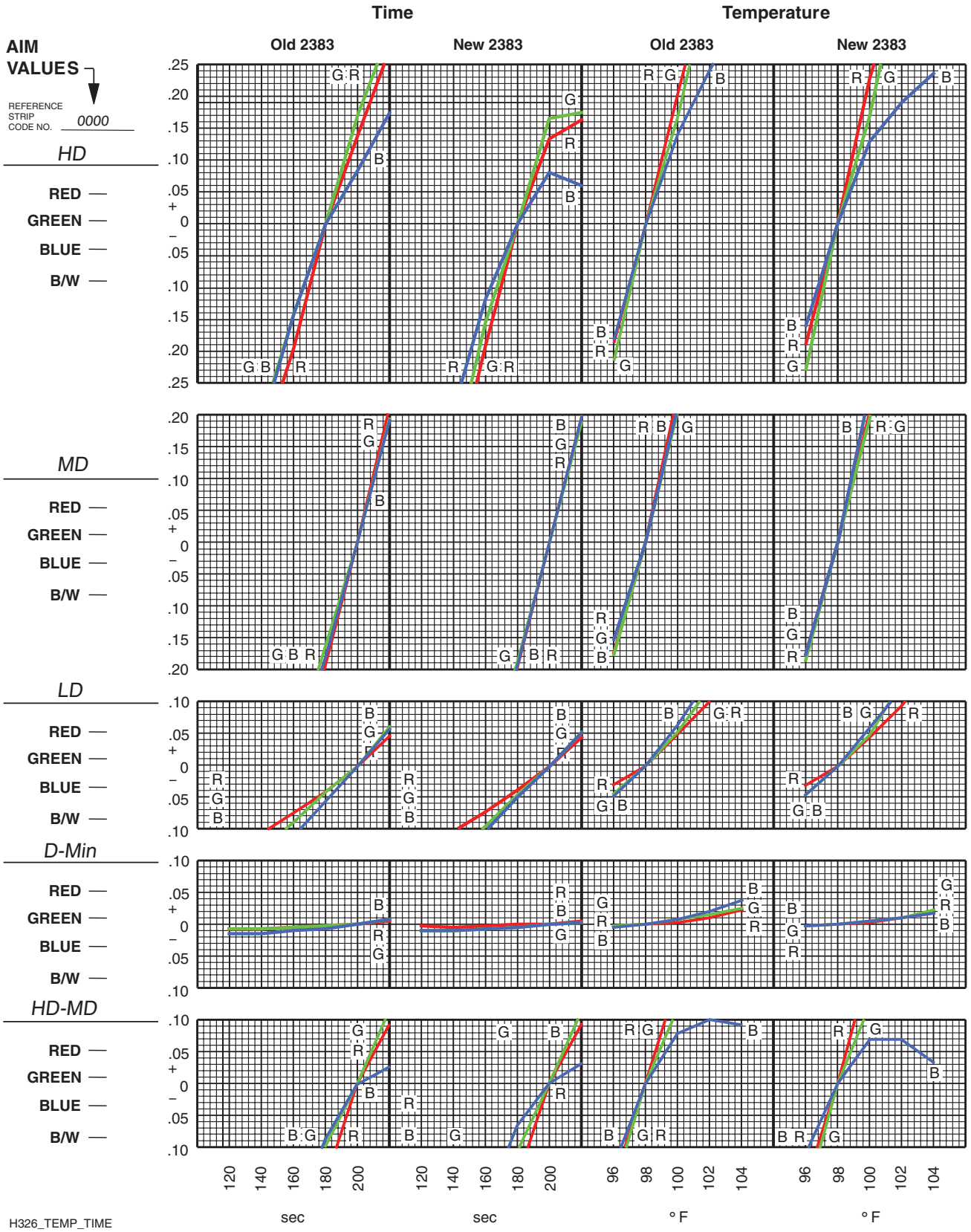
Effects of Mechanical and Chemical Variations

Figures 2 through 12 illustrate some of the photographic effects of mechanical and chemical variations on KODAK VISION Color Print Control Strips exposed on 2383 Film compared to effects on batch codes 6101 (35 mm) and 6102 (16 mm) and above. Each plot shows the effect of a change in a process variable (horizontal axis), on the dye density of the processed film (vertical axis). These density plots are deviated against the standard level for each variable (e.g., standard level for the variable is represented by a zero density deviation).

The magnitude of the changes shown in these plots should not be considered to be process control limits. Also, the data presented are qualitative, not quantitative. The plots were derived from experiments using small laboratory machines in which all constituents were held constant except the variable being studied. Hence, the figures should be used only as trend charts and guides. If two or more process variables are changed, the resulting photographic effect illustrated may not be additive. Interactions can occur that produce effects other than those predicted by addition. The plots in this publication are representative only; they do not contain all possible solution problems. Most of the important photographic effects take place in the developer.

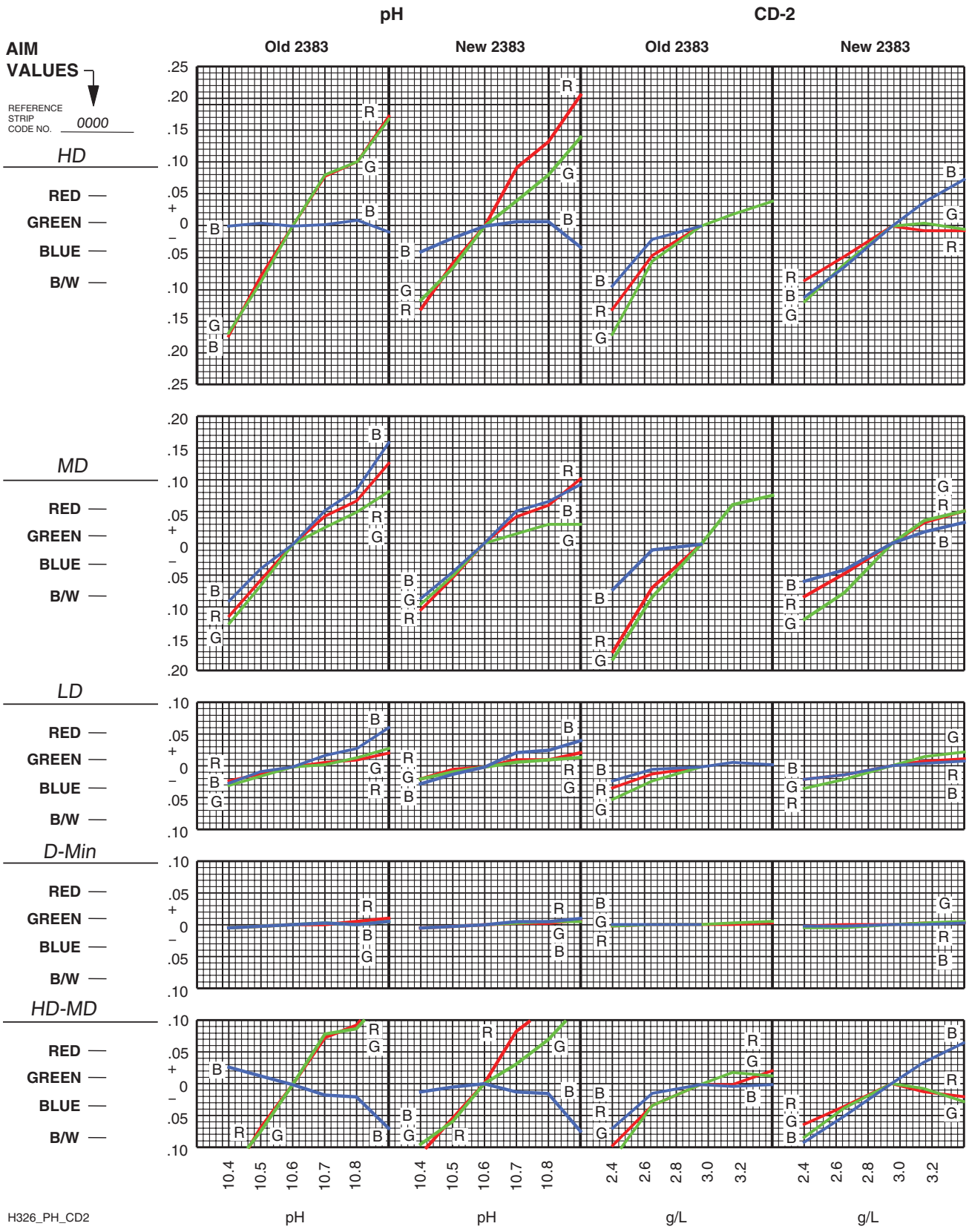
Developer Mechanical Factors

Figure 2 Effects of Time and Temperature Variations
—Current VISION Control Strips versus batch codes 6101 (35 mm) and 6102 (16 mm) in Process ECP-2D Developer



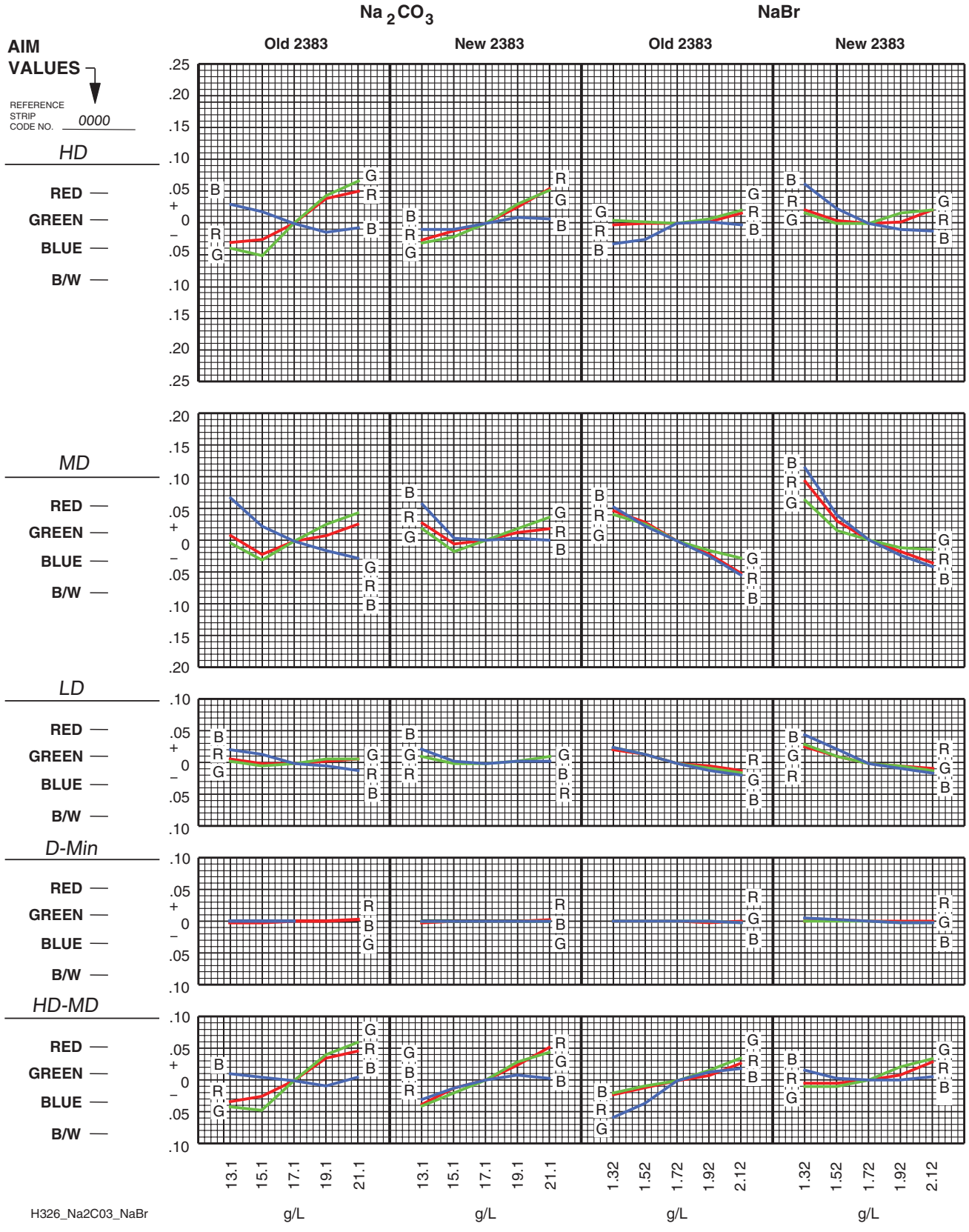
Developer Chemical Factors

Figure 3 Effects of pH and CD-2 Variations
—Current VISION Control Strips versus batch codes 6101 (35 mm) and 6102 (16 mm) in Process ECP-2D Developer



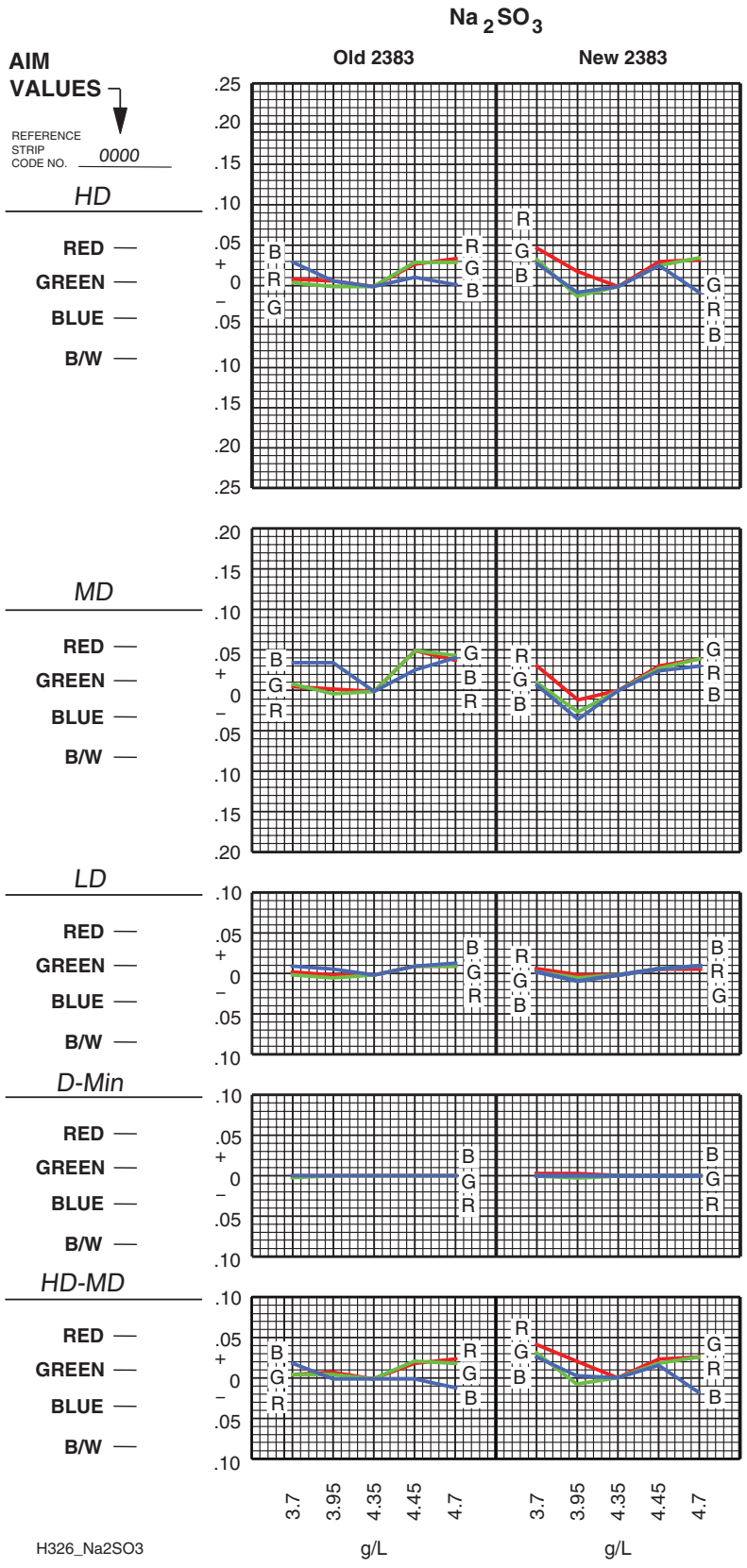
Developer Chemical Factors

Figure 4 Effects of NaBr and Na_2CO_3 Variations
—Current VISION Control Strips versus batch codes 6101 (35 mm) and 6102 (16 mm) in Process ECP-2D Developer



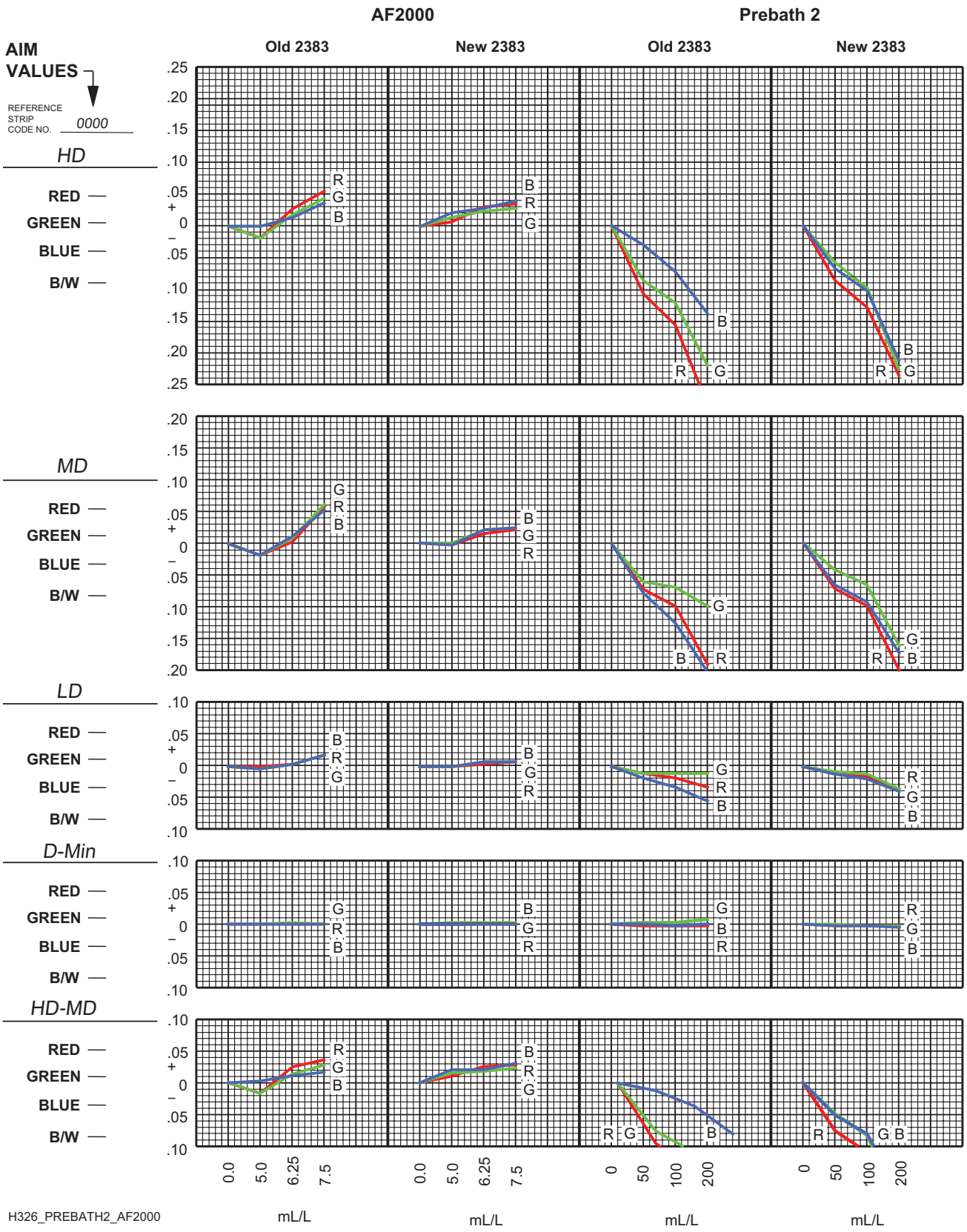
Developer Chemical Factors

Figure 5 Effects of Na_2SO_3 Variations
—Current VISION Control Strips versus batch codes 6101 (35 mm) and 6102 (16 mm) in Process ECP-2D Developer



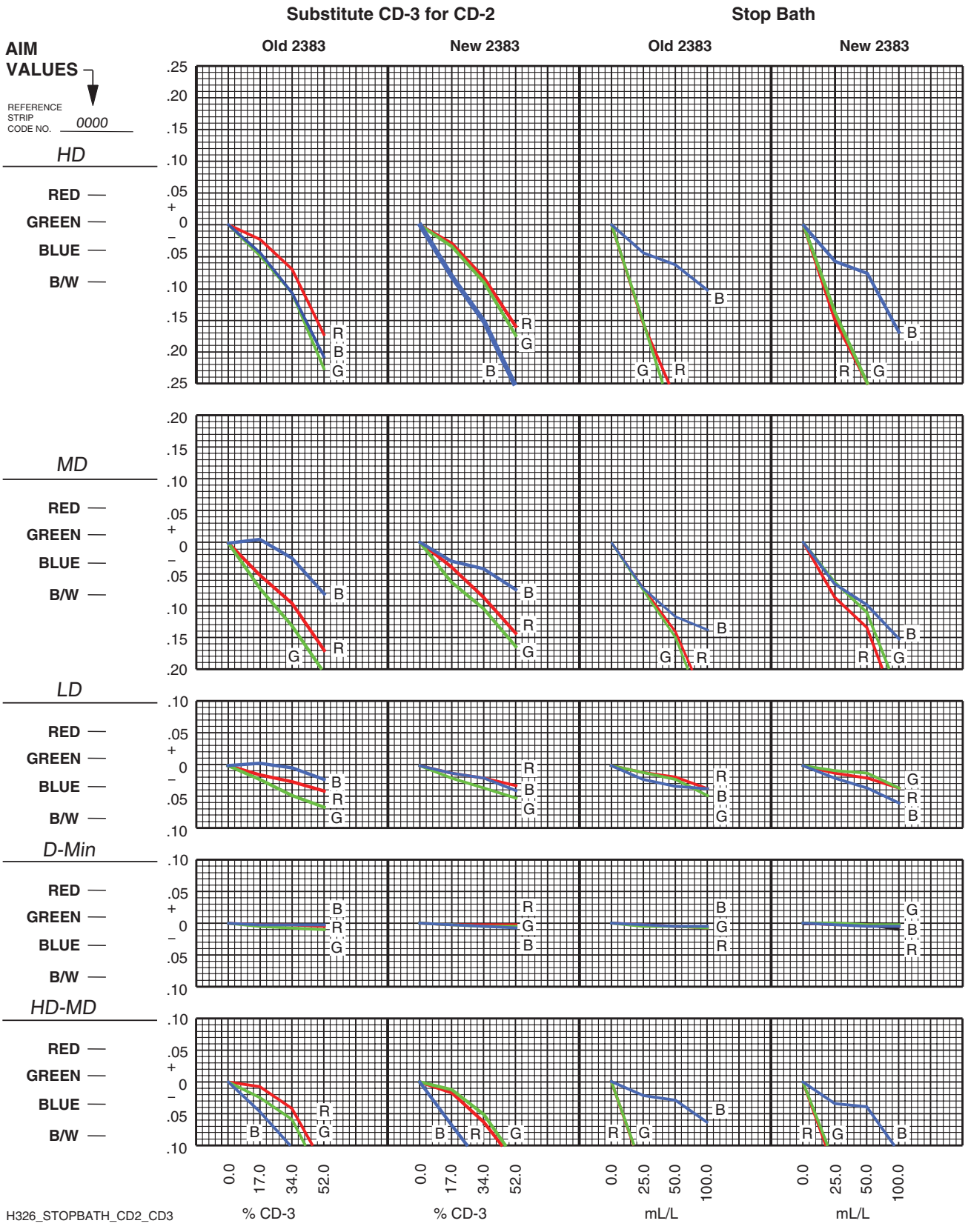
Developer Chemical Factors

Figure 6 Effects of AF-2000 and Prebath 2 Contamination
—Current VISION Control Strips versus batch codes 6101 (35 mm) and 6102 (16 mm) in Process ECP-2D Developer



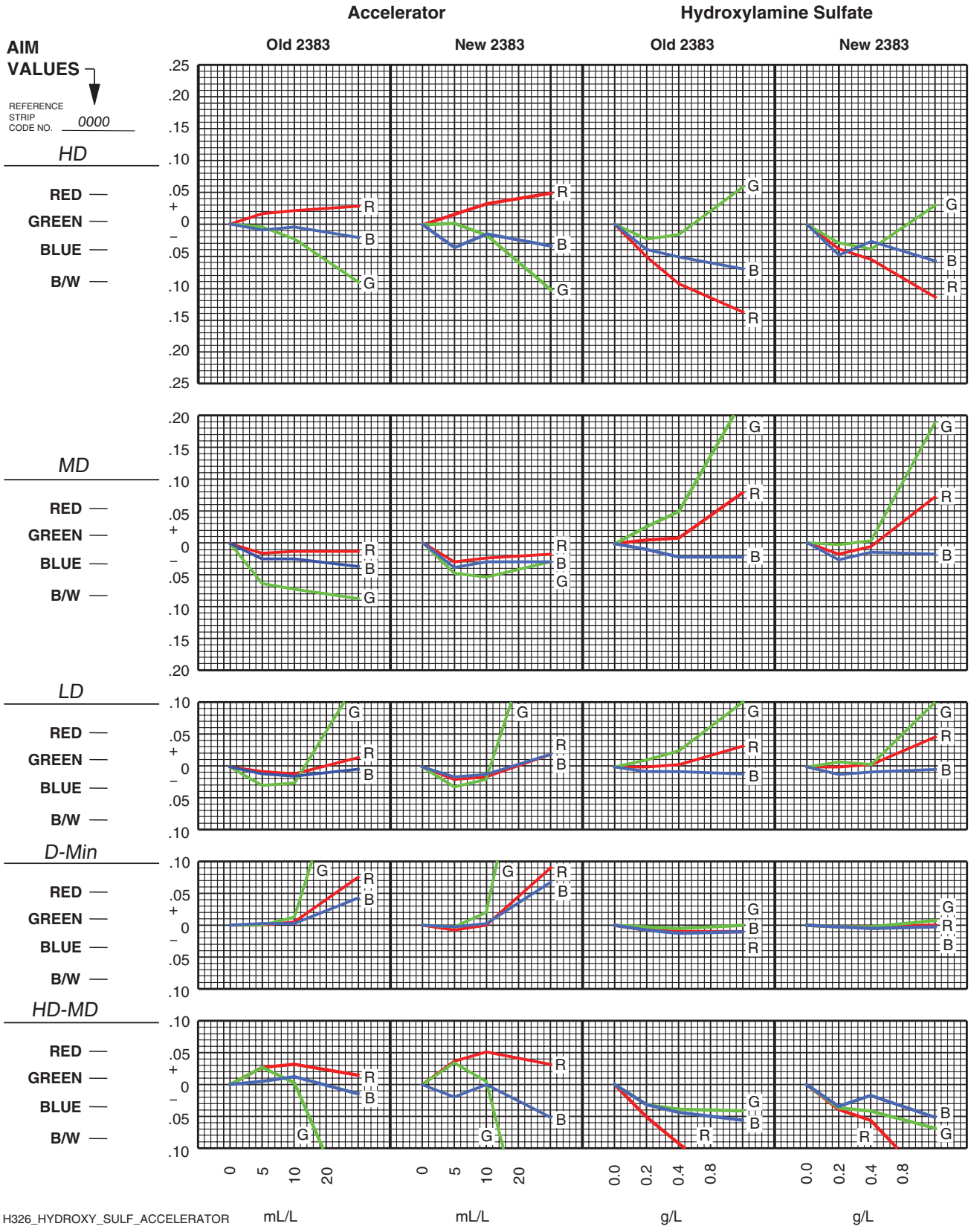
Developer Chemical Factors

Figure 7 Effects of CD-3 for CD-2 and Stop Bath Contamination
—Current VISION Control Strips versus batch codes 6101 (35 mm) and 6102 (16 mm) in Process ECP-2D Developer



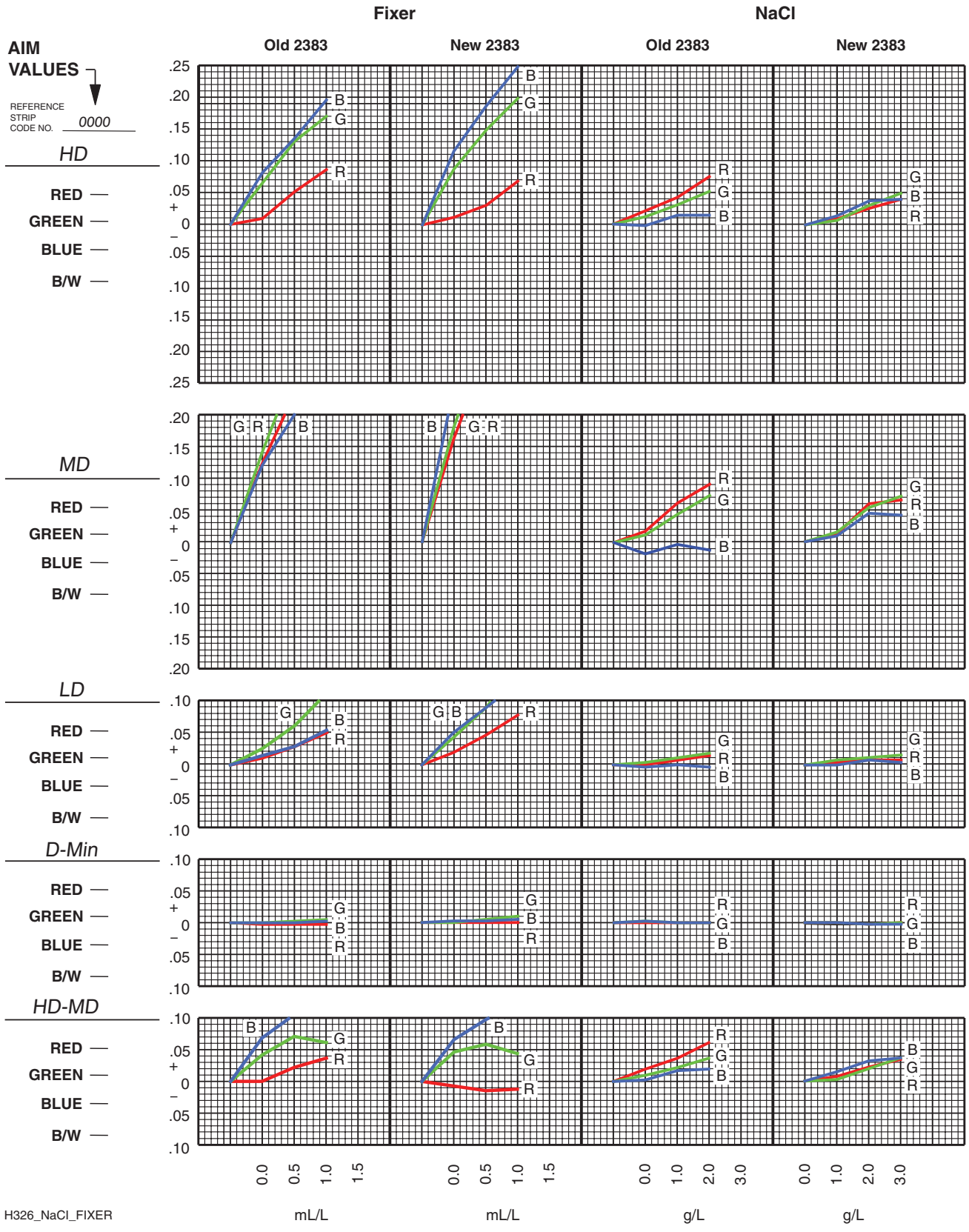
Developer Chemical Factors

Figure 8 Effects of Persulfate Accelerator and Hydroxylamine Sulfate Contamination
—Current VISION Control Strips versus batch codes 6101 (35 mm) and 6102 (16 mm) in Process ECP-2D Developer



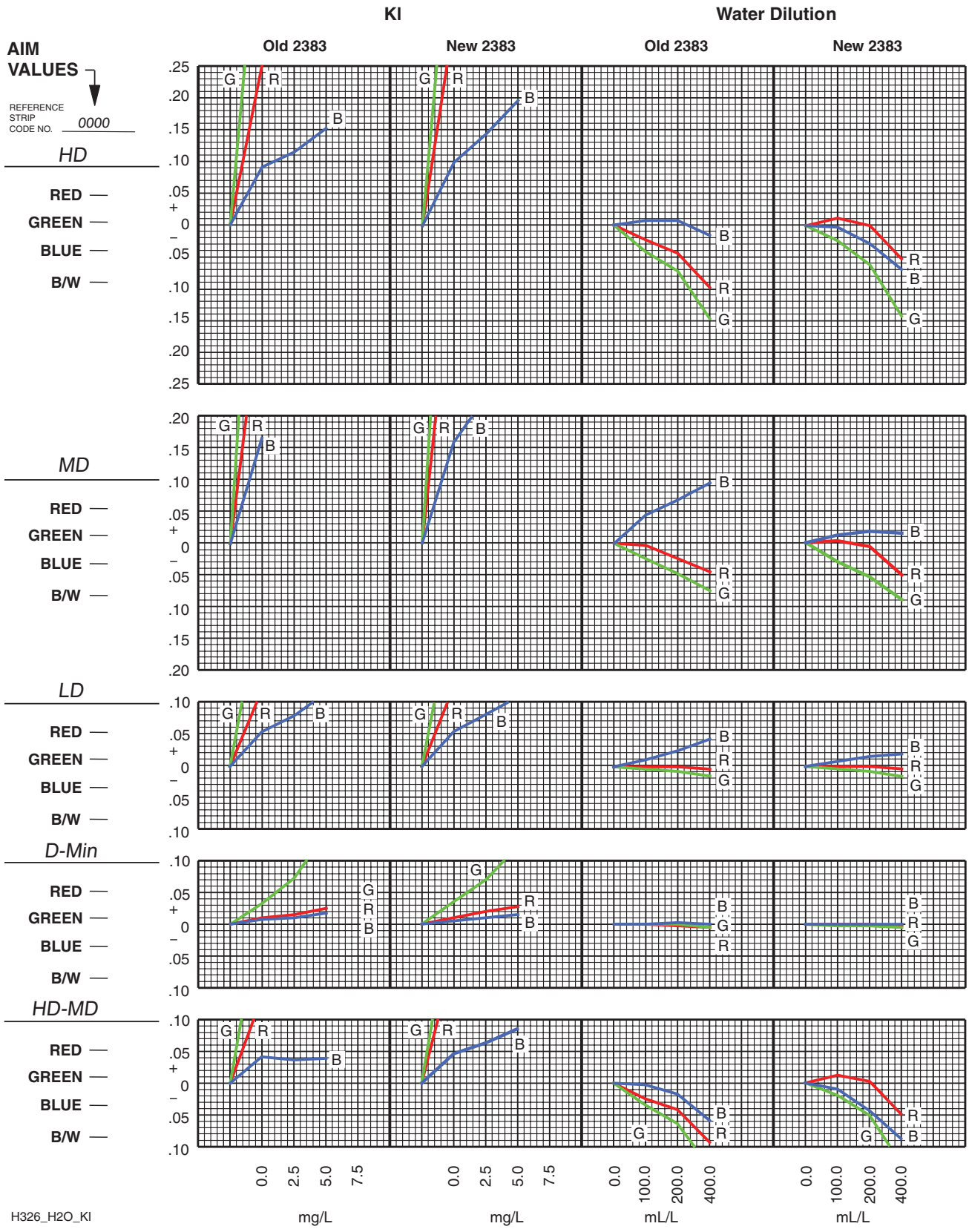
Developer Chemical Factors

Figure 9 Effects of F-35B Fixer and NaCl Contamination
—Current VISION Control Strips versus batch codes 6101 (35 mm) and 6102 (16 mm) in Process ECP-2D Developer



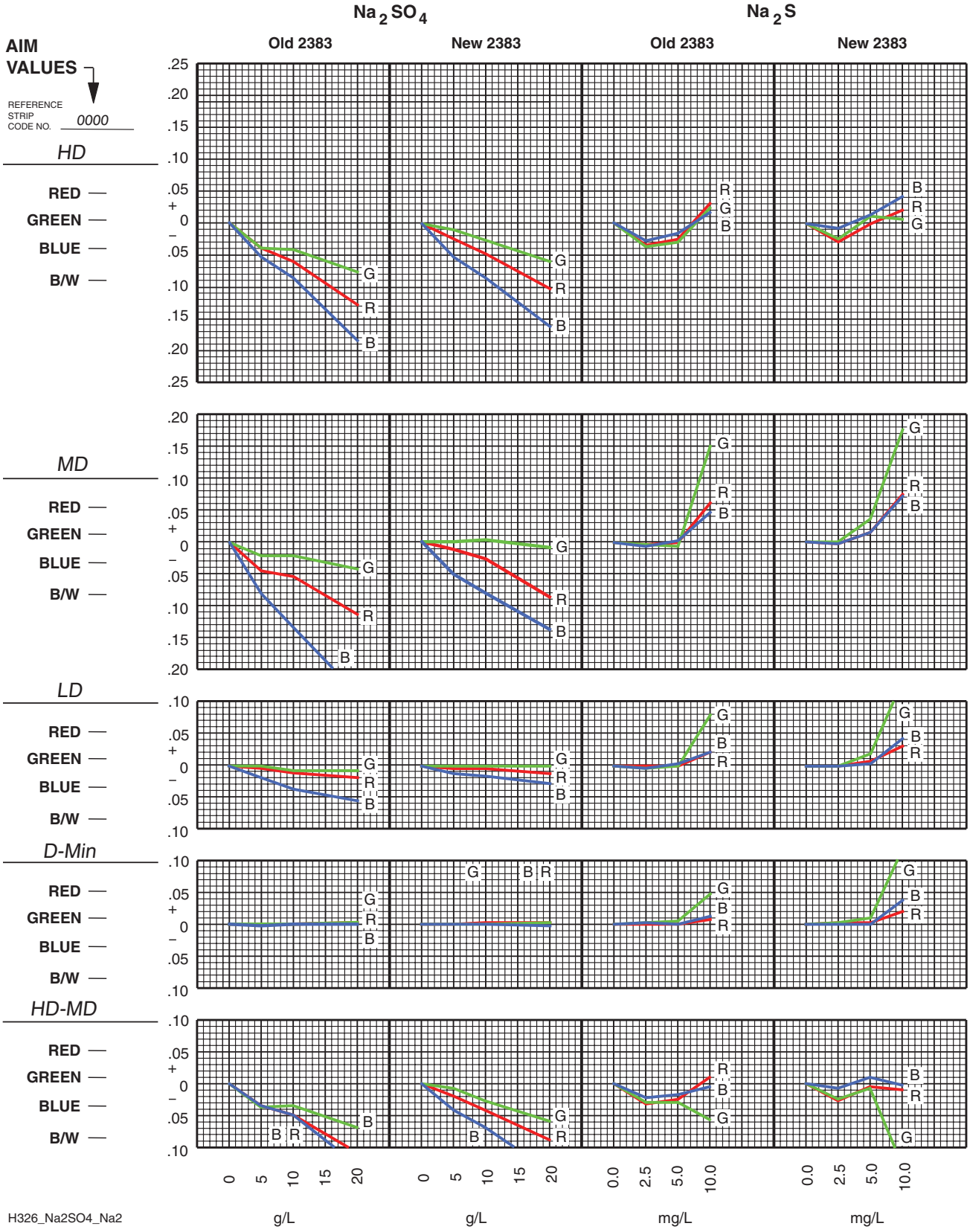
Developer Chemical Factors

Figure 10 Effects of KI Contamination and Water Dilution
—Current VISION Control Strips versus batch codes 6101 (35 mm) and 6102 (16 mm) in Process ECP-2D Developer



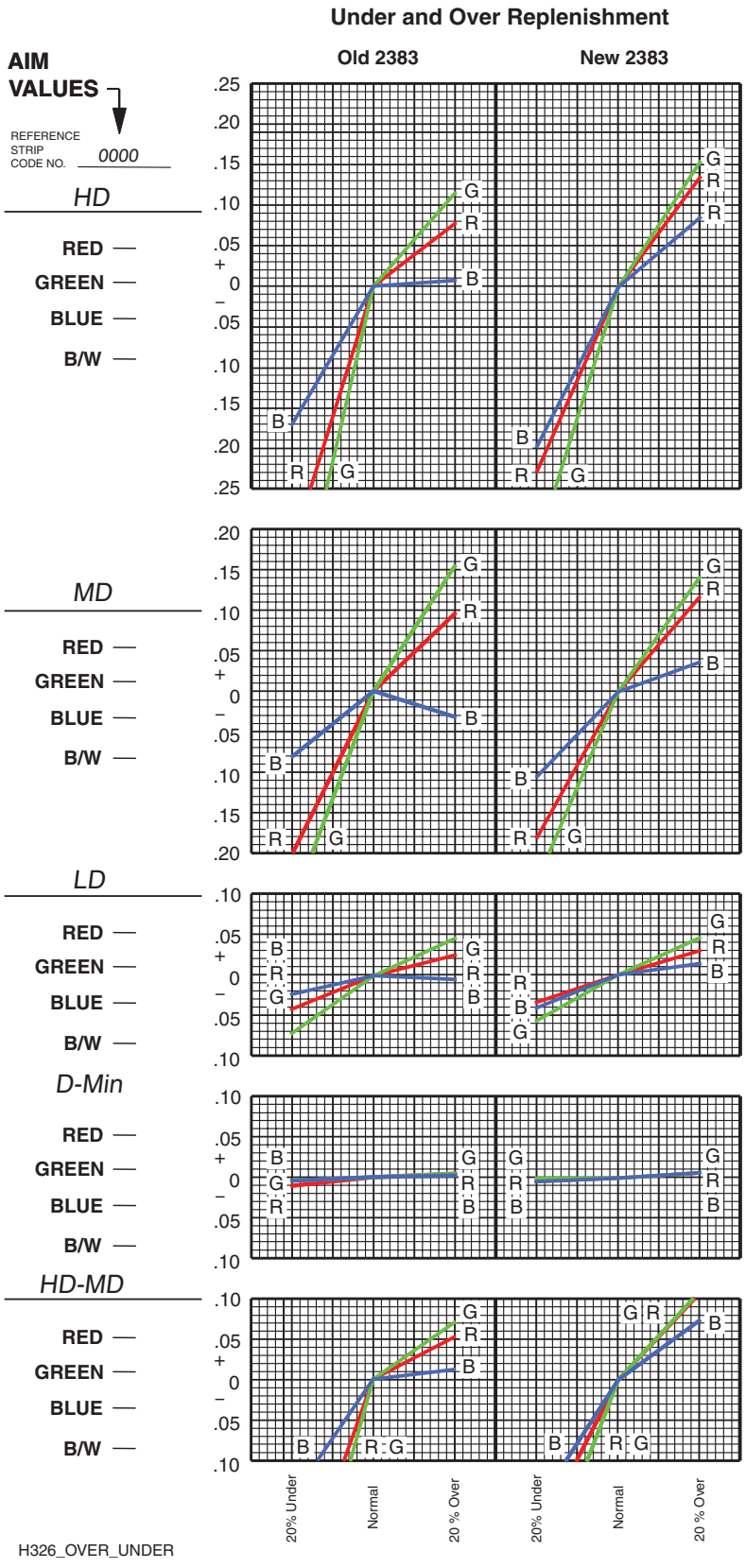
Developer Chemical Factors

Figure 11 Effects of Bacterial Na_2S and Na_2SO_4 Contamination
—Current VISION Control Strips versus batch codes 6101 (35 mm) and 6102 (16 mm) in Process ECP-2D Developer



Developer Chemical Factors

Figure 12 Effects of Under- and Over-Replenishment
—Current VISION Control Strips versus batch codes 6101 (35 mm) and 6102 (16 mm) in Process ECP-2D Developer



Control-Strip Crossover

Important: During the inventory crossover from the previous batch Control Strips to the new VISION Control Strips, every effort should be taken in your operations to avoid switching back and forth. Your process control will be greatly simplified by depleting your supply of the EXR Control Strips (except for what is needed for crossover purposes) prior to utilizing the VISION Control Strips.

There will come a time when you will need to begin using a new batch of control strips. A new batch means a new code number, not a fresh box of strips with the same code number. **Please be aware** no two batches of control strips are identical because of slight differences in product, exposures, process, etc. And therefore, the aim value numbers will not match (however, on rare occasions they could), even with the application of the deviation factors. **Keep the reference strip at room temperature in its envelope to help protect it from heat, light, and dirt.**

When you first started using control strips, you had no previous reference and you set up your aim value parameters by reading the densities of the specified (D-min, LD, MD, HD, or D-max) control reference steps and applying the deviation numbers supplied with that batch. Using a new batch of strips is really no different, except you will have a new set of aim numbers,

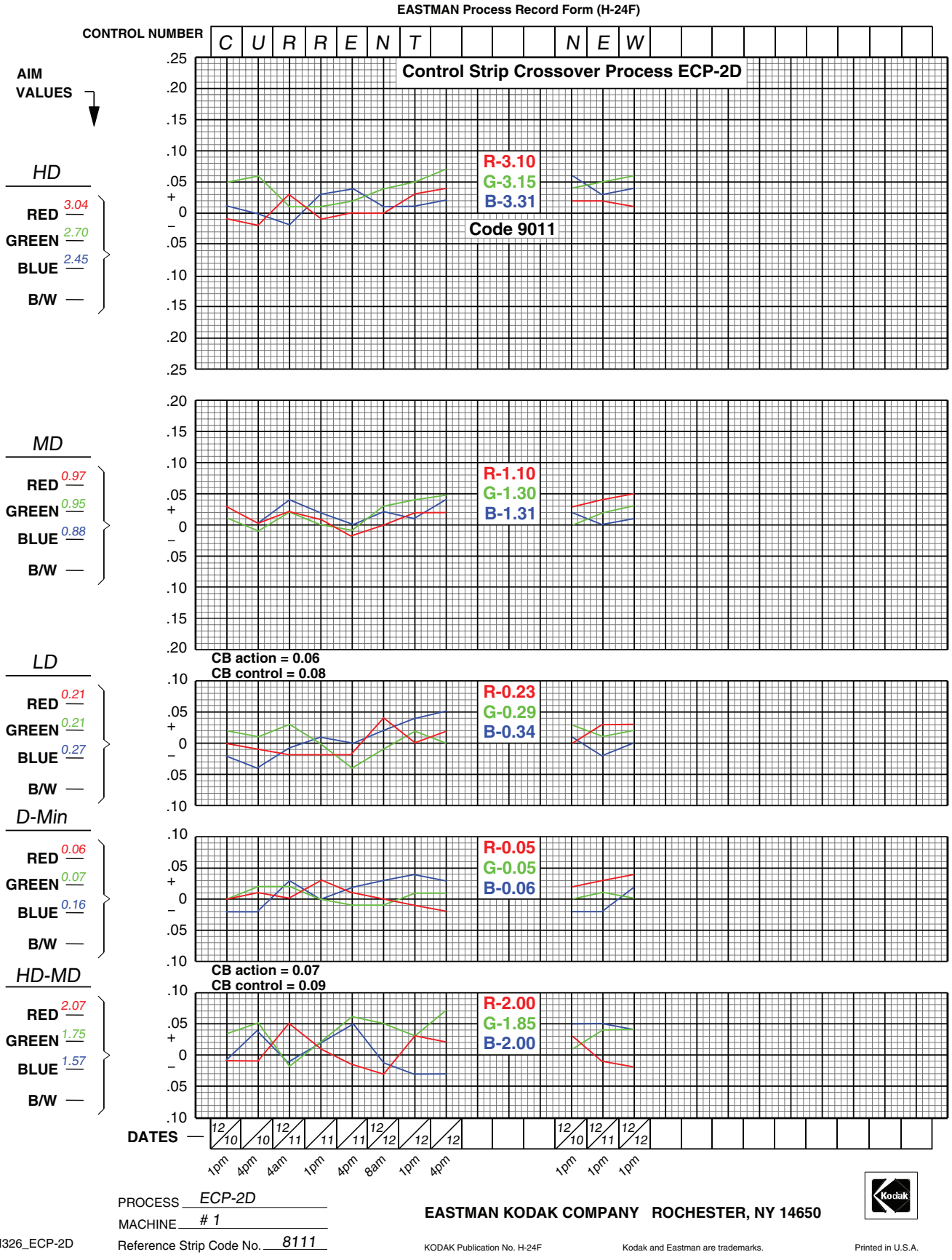
As the time approaches to change to a new batch (code), you will want to make a "crossover" from the current, or old batch. Crossover simply means to adapt to a change in aim numbers, not a change in processing technique. You should begin the crossover with at least a week's supply of strips still available (never wait until you run out).

The crossover to a new batch lets you get familiar with the new set of aim numbers. Do **not** attempt to match the new aim numbers to the old ones. If you do, you probably will find it necessary to change the mechanical and/or chemical specifications of the process, and this will most likely lead to a non-conforming unacceptable process. You will notice some differences in the way the new batch trends as compared to the previous batch. This is a normal batch-to-batch variation, and is to be expected. If you are unable to maintain a plot within your control limits with the new control-strip batch, call your Kodak representative to assist you.

Use the following crossover procedure each time a new code number is put into service:

- Determine the aim values for the new batch, the same as you did for the current or old batch, by reading the specified steps (D-min, LD, MD, and HD or D-max) of the reference strip and applying the correction factors. If there is more than one roll of the same batch, average the corresponding step densities for all reference strips in the batch, then apply the correction factors. Please remove all of the reference strips before freezing the control strip rolls. This will eliminate the chance of moisture spots forming on the reference strip.
- Process an old and new control strip simultaneously at least three separate times. Do this at different times of the day until you have a number of pairs. During this time, continue to control the process with data from the old strips.
- Post the new aim values on the same form as the old, leaving an appropriate space between the two aim sets (as illustrated in Figure 13). This way you can see the differences of each control strip reaction at a glance. You will observe the tracking of the "old" batch as compared to the "new" batch, with each plotted to its individual set of aim numbers. Both should be tracking in similar directions, but not exactly. However, they still should be within the same action and control limits. Please remember, no matter how the aim densities differ in numerical value, you still use each set as your zero (0) reference line.
- Once you are comfortable with the new batch of control strips, use a new H-24F or Y-55 form to separate and not confuse the old and new aim numbers while making the daily notations.
- If, for some reason, there is a need to adjust the process to conform to the new batch of control strips to new action and control limits, cease processing and evaluate the entire system. Such a need for change indicates a fundamental system difficulty, which most likely involves all aspects of the process, not necessarily a problem with the new batch of control strips. If difficulty continues, contact your Kodak technical representative.

Figure 13 Control-Strip Crossover for Process ECP-2D



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MORE INFORMATION

For more information on motion picture products, call or write to the Professional Motion Imaging office nearest you.

Or access Kodak's home page on the Internet, web site address—

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You may want to bookmark our location so you can find us more easily.

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