

## **COMMENTS ON ADDING BORAX TO RODINAL**

by Patrick Gainer

Users of Rodinal 1+50 laced with Vitamin C have reported two difficulties. The first is inactive developer, caused by use of ascorbic acid instead of sodium ascorbate. The second is excessive base fog, which appears to be a result of the rather high pH of the Rodinal. Rodinal uses potassium hydroxide as the accelerator and p-aminophenol as the sole developing agent. As produced by AGFA, it is a clean developer admired by some for its "honest" grain. It contains very little sulfite in the working dilutions. Adding sodium or potassium ascorbate makes the developer considerably more active, as p-aminophenol and ascorbate form a superadditive pair. The ascorbate alone is very inactive unless pH is very high, and then it produces high fog level.

The pH of Rodinal at 1+50 is apparently high enough to activate the ascorbate even if the p-aminophenol were left out. High base fog is the result. Although it is possible to print through the fog, graininess is increased by developer induced base fog. This is not Honest grain.

We can get rid of it by adding borax. That would seem to be wrong. How can adding more base reduce the pH? Borax is a good buffer. Its pH in solution will not change much from 9.2 over a wide range of dilutions. It reduces the pH of a sodium or potassium hydroxide solution. Borax is cheap and available at supermarkets everywhere as 20 Mule Team Borax (NOT Boraxo). It is easily added to a working solution of Rodinal and dissolves rapidly at working temperature. Only 1 gram (1/4 teaspoon) of borax per liter of 1+50 working solution with ascorbate will dramatically reduce the fog level. Developing time will be about 20% greater than that for Rodinal 1+25 without ascorbate. Grain will be finer. I found no virtue in using 2 or 4 grams per liter. Grain may be finer yet, but film speed is lost.

Even though unadulterated Rodinal produces clean negatives, 1 gram of borax per liter of 1+50 working solution reduces fog slightly and reduces graininess a bit as well. You might in fact prefer the borax treatment over the vitamin C, and almost certainly will prefer it over Rodinal + sulfite. If you try it, use the 1+50 dilution with 1 gram of borax per liter. If you feel the need of more dilution, cut the 1+50 with water after you add the borax until you find out if that is good enough.