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How to use a 21-step Stouffer Wedge

A Stouffer Wedge is a very handy tool to have in your studio especially if you are working in an artist printmaking studio, (as opposed to a professional commercial print shop).

A Stouffer Wedge is a strip of continuous tone film with a range of grey steps, with step 1 being clear film and step 21, 100% black. The numbers are clear so that you can see them on the processed plate. Your Stouffer Wedge measures the amount of UV output from your exposure unit lamps and is used to determine the correct amount of UV light needed to harden the photopolymer plate.

Light passes through the graded sections in greater or smaller amounts. Manufacturers of photopolymer plates suggest an ideal Stouffer Wedge reading for their particular type of plate. This reading is intended as a guide when exposing photopolymer plates to film that has been printed at a film lab on an imagesetter. An imagesetter is a high-resolution output device used in the commercial prepress printing industry that transfers electronic text and images to film. Imagesetters are becoming obsolete with the move to direct to plate processing.



21-step Stouffer Wedge and packet.



21-step Stouffer Wedge on Miraclon DS94 photopolymer plate, about to be placed in a UV exposure unit with florescent lamps, and vacuum with diffusion film.

Artists using a 21 step Stouffer Wedge

For artists making their own photopolymer plates in their studio, the optimum number or step on the Stouffer Wedge will be different, usually lower, depending on how you produce your film positive or film negative. Film produced through an

inkjet or laser printer, or a drawing with pencils or pens on drafting film will not require the same number (usually 16) that is required for imagesetter film. Inkjet and laser printed films are not as opaque as imagesetter film, so a lower step (than the step recommended by the manufacturer) will be needed.

Experiment and make notes and refer back to your notes. Keep records of the following: Date, Job/Print, Plate Material, Lot#, Exposure time, Washout time, Washout temp, Drying time, Drying temp, Post-exposure time, Stouffer Wedge reading. By keeping this information you will be able to ensure that you are maintaining accurate records of your Stouffer Wedge and plate exposures. I also keep a technical notebook and write up exposure information on new projects as I am often making plates using very different film positives.

The intensity of your UV exposure unit, the type of film positive or film negative you use, and the type of photopolymer plate are all variations in getting an optimum exposure. You lengthen or shorten your exposure time to get your optimum exposure. Using a Stouffer Wedge on a spare strip of photopolymer plate alongside your exposed photopolymer plate will give you a step reading for future exposures (using the same UV exposure unit, film and photopolymer plate).

You can also use the Stouffer Wedge to ascertain the intensity of UV light when using a different or unfamiliar UV exposure unit. By testing the UV unit with a Stouffer Wedge you can see if the new unit is more or less powerful than the unit you have been using and adjust your exposure times accordingly. For example you may find that a 60 second exposure on your UV exposure unit works perfectly for a certain plate and particular film positive (inkjet or hand-drawn). Make a Stouffer Wedge exposure on the same plate for 60 seconds. Wash the plate to ascertain the step reading, which is the last step that has not washed away.

If you are having problems with your Stouffer Wedge exposure results, ensure that you are using UVA light bulbs or tubes, 360-400 nm (nanometers), and they are all working. If you are using sunlight, make plate exposures between 11am and 3pm when UV light is strongest. Your times will vary depending on your climate and the time of the year. When using sunlight to expose your plates you can do a test Stouffer Wedge exposure to get a reading of the intensity of the UV light on a test strip of your photopolymer plate. If you have previous results of working in sunlight, you can compare them.

You can use the Correction Table on the back of the Stouffer Wedge envelope to increase or decrease your exposure.