

**SCALA,  
B&W  
REVERSAL  
KIT.**



# HOW FILM REVERSAL WORKS

Combined with ADOX SCALA film, this process produces high-quality, sharp, fine-grain black-and-white slides with an extended dynamic range.

The film's exposed silver halides are converted to metallic silver by the first developer. In normal processing, the unexposed silver halides are removed with fixer, leaving a negative image. In order to get a positive, the metallic silver is dissolved by a special silver solvent (bleach). What remains are the unexposed silver halides that are still sensitive to light. After re-exposure, they form a perfect opposite of the initial negative, which then is developed again, producing a rich and brilliant slide.

# PROCESSING TECHNIQUE

## AGITATION

Agitation of developers, bleach bath and clear bath uses the same technique: continuous agitation for the first minute, then 10 seconds of agitation per minute (or 5 seconds every half minute) for the remaining time.

## WASHING

Water temperature should be kept at 20°C/68°F with a tolerance of 2°C/3.6°F, and can be slightly higher for Scala 160. Washing time under running water should be no less than 3 minutes, with fully emptying and refilling the tank at least twice. If washing is done by the fill and dump method, 8 fills with 30 seconds agitation ensure proper removal of previous chemistry.

## CAPACITY

One SCALA kit can be used for processing up to eight 35mm or 120 rolls of film, depending on your tank.

Processing two rolls at a time is possible only if the films are the same (SCALA 50 and SCALA 160 cannot be processed together due to different times). With 120 format, two films can safely go on one reel and be processed as normal in 500ml/16.9Oz of chemistry.

# TIMES & DILUTIONS

Bath	Dilution	To make	Water	Stock Solution
<b>First Developer &amp; Bleach</b>	1+1	250 ml 300 ml 500 ml	125 ml 150 ml 250 ml	125 ml 150 ml 250 ml
<b>Clear Bath</b>	<p><i>For two liters (67.6 Oz) of working solution:</i> Put an entire Clear Bath bag in 1 liter (33.8 Oz) of water and stir until dissolved. Add water until it reaches 2L (67.6 Oz).</p> <p><i>For one liter (33.8 Oz) of working solution:</i> Put half of the Clear Bath bag in 500 ml (16.9 Oz) of water and stir until dissolved. Add water until it reaches 1L (33.8 Oz).</p>			
<b>Second Developer</b>	<b>Reuse the First Developer for this step!</b>			

Bath	Scala 50 (20°C)	Scala 160 (24°C)
<b>First Developer</b>	14 min	15 min
<b>Rinse</b>	2:30 min	2:30 min
<b>Bleach</b>	4 min	6 min
<b>Rinse</b>	2:30 min	2:30 min
<b>Clear</b>	4 min	4 min
<b>Rinse</b>	3 min	3 min
<b>Re - Exposure</b>	2 min from each side	2 min from each side
<b>Second Developer</b>	6 min	6 min
<b>Final Wash</b>	6 min	6 min

# PROCESSING STEPS

## 1. FIRST DEVELOPER

Time and temperature are extremely influential during this step. Longer development leads to washed-out slides. It is important to tap the tank gently on the work surface to get rid of air bubbles during agitation.

After first development, the developer should be poured into a bottle/cylinder and saved to be reused in step 5.

The film has to be thoroughly washed after this step to stop the development. The difference in PH between the two steps is such, that short rinsing may lead to emulsions lift-off during bleach bath, because photographic films are incapable of tolerating great shifts in acidity levels.

## 2. BLEACH BATH

To ensure proper bleaching, the tank can optionally be slowly continuously agitated the entire time.

Too violent agitation may lead to over-bleached film, therefore brighter and harsher slides. Proper washing is necessary to remove all residual bleach from both the film and the tank.

## 3. CLEAR BATH

The clearing bath removes the yellow staining created during the bleach bath. After this step, the film should be washed again to be prepared for the second exposure.

**NOW YOU CAN OPEN THE TANK!**

## **4. SECOND EXPOSURE**

It is very important to ensure a completely even exposure of the film. Best results are achieved under a 100-150W incandescent lamp at a 45-80cm (18-31in) distance. Alternatively, a fluorescent lamp at 30-40cm (12-15in) can be used too.

**DO NOT EXPOSE TO DIRECT SUNLIGHT!**

It's best if the film roll is in a transparent water-filled cylinder, but an open tank with water works too. The tank/cylinder can be slowly rotated and slightly tilted under the light. After two minutes of exposure, the film side should be changed by placing the reel upside down, and exposed for the remaining two minutes. Over-exposure may lead to film staining.

Two 35mm films, when processed in the same tank, have to be exposed one after the other. 120 film should be exposed in a water-filled transparent cylinder to ensure good lighting across the film's bigger surface.

## **5. SECOND DEVELOPER**

The first developer is used again as the second developer. The process is exactly the same except for a difference in time. The developer has to be discarded after this step. Now the slides are fully developed!

## **6. FIXER (OPTIONAL)**

To remove possible residual silver halides, it is recommended to use any general use fixers. Rapid fixers should be used at their weakest dilution (not 1+4, but 1+9) for no longer than 4 minutes, otherwise the emulsion's lift-off risks increase considerably.

## **7. FINAL STEPS**

After fixing, the slide can be treated like normal negative film: a final long wash, followed by Adostab or a regular wetting agent.

## OTHER PROCESSING NOTES

It is possible to manage contrast within limits with the Scala kit, e.g., if the light is very flat, 15 minutes of first developer for Scala 50 will create nicer highlights.

For Jobo rotary processors, all times (developer, bleach, clear, second developer) should be decreased by 15%

## STORAGE OF THE SOLUTIONS

When stored in regular closed bottles at lower room temperatures in subdued light, diluted bleach and clear baths last for 8 weeks, stock (undiluted) solutions last for 16 weeks after opening. Stock developer lasts 4 weeks after opening.

When protected from contact with air (e.g., with *protective gas*), stock developer lasts for 24 weeks, stock bleach and clear baths last for 48 weeks and diluted bleach and clear baths last for 12 weeks.



FILM  
PHOTOPAPER  
CHEMICALS

 adoxphoto  
[www.adox.de](http://www.adox.de)

