



TETENAL
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DISCOVER THE MAGIC.

*A guide to the development of Color Negative Films
at home. Have fun trying out and experimenting
and discover the magic of film development.*



Warm Welcome.

This Magic-Box contains all necessary concentrates for the mixing of the developing baths, which you need for the developing of your color negative film.

CONTENTS OF THE MAGIC BOX:

Developing bath

Mixture

First Developer 1.1	50 ml Concentrate	
First Developer 1.2	50 ml Concentrate	+ 100 ml water for 250 ml working solution
First Developer 1.3	50 ml Concentrate	
Bleach Fixer 2.1	50 ml Concentrate	+ 150 ml water for 250 ml working solution
Bleach Fixer 2.2	50 ml Concentrate	
Stabilizer 3	50 ml Concentrate	+ 200 ml water for 250 ml working solution





A quick Overview.

THE DEVELOPMENT PROCESSES:

01

In this guide, we focus on developing outside of a photo laboratory and without access to for example a JOBO color processor or a temperature control unit - e.g. at your home. Your film goes through various chemical baths and rinses one after the other. at 30°C before it is hung up to dry afterwards. All steps necessary for this, the temperature as well as time information can be found in detail in this manual. Have fun!

02/
03

Alternatively, you can use a color processor (02) with automatic temperature and movement control. These processors, e.g. from JOBO, enable you to maintain exact and constant compliance of the processing parameters. The development box is motor-driven and rotates in a temperature controlled water bath, which also keeps the bottles with the developing baths at temperature. For the suitable rotation speed, set the corresponding wheel on the JOBO to „F“. This process takes place at 38°C. The same temperature applies to a development with a temperature control unit (03), which is also supplied by Jobo. Here the bottles with the developing baths and also the developing tank can be heated to the preset temperature in a tempered water bath. The movement of the development tank (180° turn upside down and back) is done manually in 10 second tilt rhythm:

10 seconds movement - 10 second pause.

Recommended temperatures and times for processes 02 and 03:

	Temperatur	Zeit
Preheat the developing can:	38 ± 0,5	05:00 Min.
Farbentwickler/colordeveloper:	38 ± 0,3	03:30 Min.
Bleichfixierer/bleach fixer:	38 ± 1	04:00 Min.
Wässerung/rinsing:	35 ± 5	6 x 30 Sec.
Stabilisierer/stabilizer:	30 ± 10	01:00 Min



All you need is fun and:

A FEW AIDS:

- 1 absolutely dark room to insert the film (or a change bag)
- 1 developing tank (e.g. JOBO 1510/1520, Paterson, A&P.) with film spiral
- 1 Thermometer
- 1 Smartphone (or another clock to stop the times)
- 1 bowl (ideal in 30 × 40 cm with a high edge)
- 1 measuring cylinder (approx. 250 ml for measuring water)
- 1 measuring cup (approx. 1 litre for watering)
- 3 bottles, 250 ml each (as storage bottles for the freshly mixed baths)
- 1 waterproof pen to mark the bottles (you can also use adhesive labels)
- 2 clamps for hanging the developed film (e.g. clothes pegs)
- 1 pair of gloves

TIP

You should set up everything what you need before once completely in front of you, in order to have a good overview and thus nothing is missing during the development. Better read the complete manual before you start.



01_ Preparing of the Film.

Everything you need to get the film into the development tank you should get ready first.

FOR THE FIRST STEP YOU NEED:

- Open developer tank with separate film spool and lid within reach
- Your exposed film
- a film film picker or simply a bottle opener

TIPP

If you've never made this step before then it helps if you reel the film into the film spiral of the developer tank in the light with an old film a few times.



The Light is going out.

As much as the light is your friend for the exposure of the film in the camera - so much is it now a uninvited guest, when it comes to getting the film into the development can.

THAT'S HOW IT GETS REALLY DARK:

- room without window (bathroom? chamber? change bag?)
- no light through a door gap (towel or similar)
- no light through a door lock (mask)
- cell phone stays outside!
- fluorescent watches also



Find a room that you can completely darken and arrange everything so that you can find and use it in the dark.

TIP



01_ Open the film can and prepare the film.

- open the bottom of the film can with the bottle opener.
- take out the film and separate it with the scissors from its core, to wind it onto the film spool.



02_ Rewind the film.

- lead the film into a spiral.
- use the mechanics of the spiral to completely to roll up.

TIP

You can make the corners of the filmstrip round a little with scissors, to make winding easier.





03_ Inserting the film spiral.

- feel the side of the spiral with the attachment for the tank.
- with this side down you now put the spiral film into the the development tank.



04_ Close the development tank.

- put the lid on top of the tank.
- press it firmly with both hands.
- then check briefly whether everything is firm and therefore light-tight.

Lights on! From here it goes on in the bright...



02_ Preparing of the baths.

In this step it is important to label everything well and the prepare the pre-portioned concentrates with the correct quantities of water. The best thing to do is to fill the measuring cup with 450 ml and 40°C warm water to be ready to fill the bottles.

FOR THIS STEP YOU'LL NEED:

- the three storage bottles for 250 ml contents
- the measuring cup and the measuring cylinder to measure the water quantities
- a waterproof marker
- gloves
- the big bowl for heating the baths
- the thermometer
- all concentrates from the Magic-Box
- a room with running water and corresponding space

TIP

We advise you to wear something that can take a stain, because especially the color developer is very stubborn.



05_ Preparing the water bowl.

- fill the bowl with hot tap water.
- 40°C is the temperature that helps you to prepare your baths during the preparation time to 30°C.
- You can readjust with hot or cold water at any time.



06_ Labelling the bottles.

- it is important to be able to keep the bottles well apart later.
- Each of the three bottles is marked for its contents:
Color developer, bleach fixer and stabilizer.





07_ Water for concentrates

- pour the correct quantities of tap water into the respective storage bottles (450 ml in total; approx. 40°C)
- then you can fill the concentrates from the Magic-Box into the bottles pay attention to the number and color code.



100 ml water +
3 × 50 ml concentrate
= 250ml solution



150 ml water +
2 × 50 ml concentrate
= 250ml solution



200 ml water +
1 × 50 ml concentrate
= 250ml solution

08_ Mixing the working solution

- Colour developer: 100 ml water and the 3 green concentrates 1.1, 1.2 & 1.3 give 250ml in the bottle.
- Bleach fixer: 150 ml water and the 2 yellow concentrates 2.1, 2.2 give 250ml in the bottle.
- Stabilizer: 200 ml water and the red concentrate 3 gives 250ml in the bottle.

TIP

We need 250 ml of each working solution to be able to wash around the film in the developing tank.



09_ Color developer.

- pour 100 ml of water into the bottle.
- and then the three colour developer concentrates 1.1, 1.2 and 1.3.
- shake well a few times.



10_ bleach fixer

- pour 150 ml of water into the bottle.
- and then the two bleach-fixer concentrates 2.1 and 2.2.
- shake well a few times.



11_ Stabilizer.

- pour 200 ml of water into the bottle.
- and then the concentrate 3 (Stabilizer).
- Shake well a few times.



One after the other the bottles should land together with the film development tank in the water bath to reach their process temperature of 30°C.

With the thermometer you can control the temperature and if necessary adjust with hot water in the bowl. When the color developer has reached the right temperature of 30°C, you are ready to start.

After each measurement of the temperature in the bottles you should rinse thermometer under running water to prevent that parts of the solutions get from one bottle into another.

TIP



03_ The film development.

The three development baths have been prepared and now the film passes through them in the tank one after the other incl. watering. It is important to be accurate with the times and to keep the can in a certain tipping rhythm.

TIME & TEMPERATURE

	Temperature	Time
Color Developer	30°C	08:00 Min.
Bleach Fixer	30°C	06:00 Min
Soaking	30°C	04:00 Min.
Stabilizer	30°C	01:00 Min.

- The indicated times are valid from the first contact of a bath/a watering with the film until the first contact with the following bath/watering.

- You start the time after you have put the respective bath/water into the developing tank. You should push the tank with the filled color developer hard onto a table top to remove adhering air bubbles from the film. Then tilt immediately for 10 seconds, 10 seconds pause in water bath, 10 seconds tilting, etc.

- After the bleach-fixing bath you can open the developing tank. Watering as well as the stabilizing bath can be carried out in the opened tank. But you can also do everything completely in the closed tank.

- After the stabilizing bath you can carefully remove the wet film from the film spiral, strip off between 2 fingers and hang up to dry.



12_ Color developer.

- if the color developer in the bottle has 30°C it can start.
- set the timer to 08:00 minutes.
- fill the developer into the film tank and push it once hard on the working surface.



- immediately start tilting after that
- 10 sec. at a time you turn the film tank alternately upside down and back again
- then put the tank into the warm water bath in the bowl for 10 sec.
- Shortly before the end of the 08:00 min. you quickly tip the developer back into the bottle and close it.





13_ Bleach fixer.

- If the bleach fixer in the bottle has 30°C it can start.
- set the timer to 06:00 minutes.
- fill the bleach fixer into the film tank and push it hard onto the working surface.



- immediately start tilting after that
- 10 sec. at a time you turn the film tank alternately upside down and back again
- then put the tank into the warm water bath in the bowl for 10 sec.
- After the 06:00 min. you quickly tip the bleach fixer back into the bottle and close it.





14_ Watering.

- turn on the tap at about 30°C.
- set the timer to 04:00 minutes and let the water run into the film tank.
- during the 04:00 min. you should always dump the film tank completely.



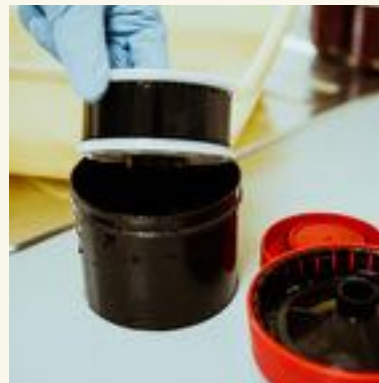
15_ Stabilizer.

- If the stabilizer in the bottle has 30°C it can start.
- set the timer to 01:00 minute.
- Fill the Stabilizer into the film tank and push it once hard on the working surface.





- immediately start tilting after that
- 10 sec. at a time you turn the film tank alternately upside down and back again
- then put the tank into the warm water bath in the bowl for 10 sec.
- After the minute you pour the stabilizer back into the bottle and close it.



16_ Dry the film.

- Your film is now developed - congratulations!
- You can now take it out of the tank.
- and strip it off between the fingers to hang it up to dry (e.g. with clothes pegs).

TIPP

The developer tank and the film spiral must be well cleaned, so that no residues of the stabilizer remain in it.



DISCOVER THE MAGIC OF FILM DEVELOPMENT.

Thank's for using the Magic-Box C-41. We hope you enjoy maybe your first film development and the discovery of the magic that comes with it.

SOME FINAL CLUES:

- You should clean the development tank and film spiral after each development cycle thoroughly under running water (open film spirals)
- the cleanliness of your equipment is important, which also includes a clean water bath and the tightness of the developing tank.
- After each temperature measurement, please rinse the thermometer with water and never go directly from one bath to another.

TIP

You can dispose of used chemicals at your local recycling centre.