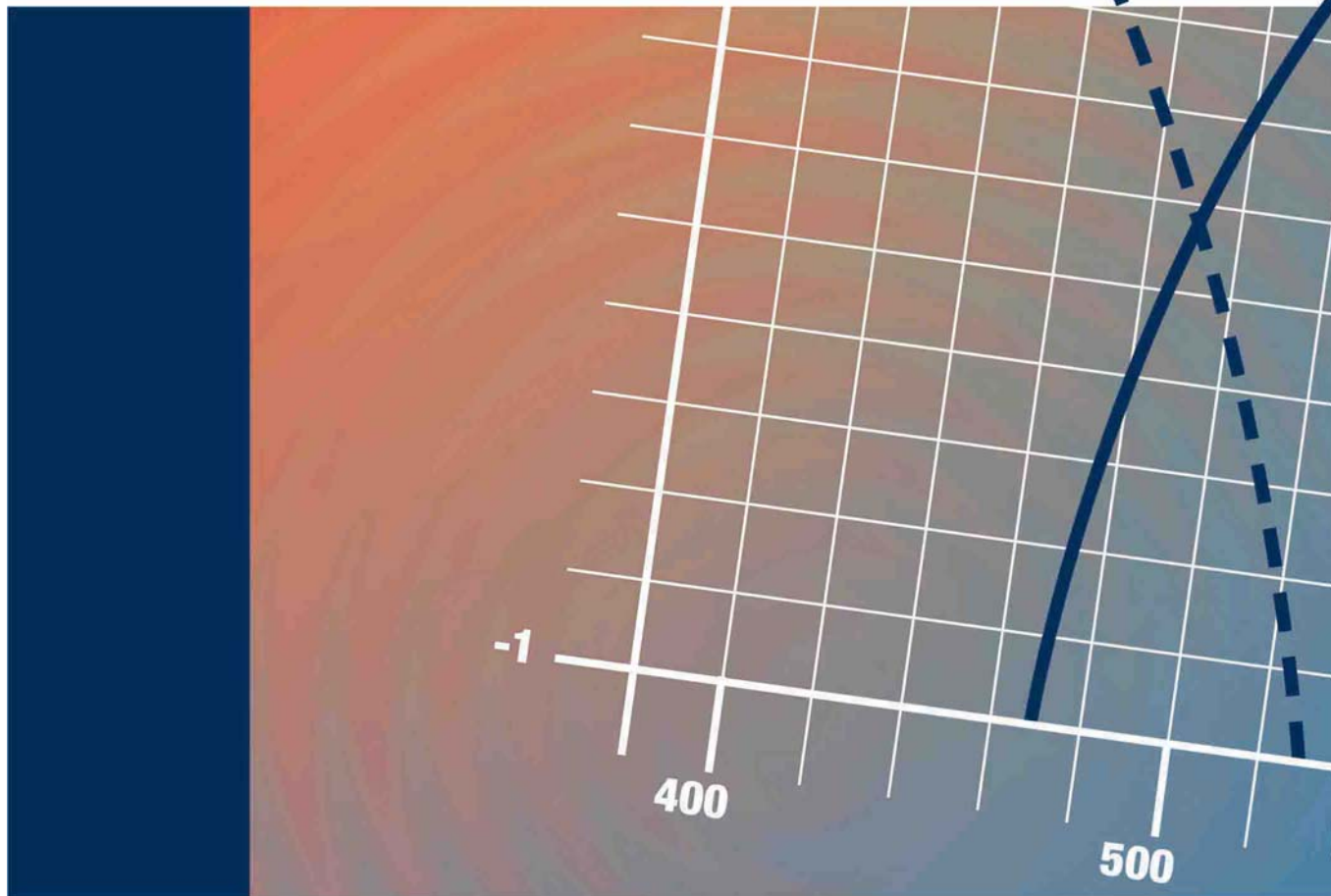


Technical Data

Agfacolor Process 94 Minilab



The Agfacolor Process 94 from a&o imaging solutions is compatible with the standard Process RA-4/RA-4 NP. It is intended for processing all RA-4-compatible colour negative materials.

The following information on Process AP 94 in minilabs is intended to serve as a processing guideline. Consistent processing conditions are a pre-requirement for good results. This consistency can be ensured by carrying out regular chemical and sensitometric monitoring.

1. Storage, industrial safety, handling photo-chemicals, environmental protection and disposal

Storage

The chemicals should be stored in their original packaging at temperatures of between 8°C and 25°C. If the temperature is too low, certain substances may crystallise in the liquid concentrates, which could result in wrong bath mixtures if this is not taken into account when making up the mixing. The effects of direct heat must also be avoided because high temperatures can trigger a premature chemical reaction in concentrates that are prone to oxidation, and this in turn can lead to the bath becoming spoilt.

Safety aspects when handling with photo-chemicals

There are certain precautions (e.g. avoiding contact with food and drinks) and safety measures which should be observed when working with photographic processing chemistry. They include adequate ventilation at the workplace and, when necessary, the wearing of protective gloves and goggles.

Observing all the safety precautions will ensure a high level of safety at work. Nevertheless, with particularly sensitive people, the possibility of irritation to the skin and mucous membranes and, in isolated cases, allergenic reactions, cannot be excluded when working with photographic chemicals.

Special instructions regarding transport and hazards for certain photochemicals are given on the pack labels of all products with compulsory identification. Additional safety recommendations for the AP94 are given in the directions enclosed with the products 94 CD-LR and 94 CD-LOR.

For all photo-chemical products safety data sheets can be requested in several languages. These also include specific information on the constituents.

Environmental protection and disposal

Wash water from processors containing small quantities of process solutions are subject to local and often general effluent regulations covering disposal into the public sewage system.

If the effluent regulations do not permit used photographic solutions to be discarded into the public sewer even after treatment, they must be disposed of as special waste.

The packaging of a&o imaging solutions photo-chemicals conforms to the requirements for safety (during transport, storage and handling) and recycling.

Photo-chemical packaging must not contain any harmful impurities if it takes part in collection and recycling systems. For this purpose the packs must be absolutely empty, that is free of leftover powder, sludge and drops. Photo-chemical containers should preferably be rinsed out as well. It is best to use some of the mixing water for this.

2. Process control

The process should be sensitometrically monitored with suitable control strips. These strips should be regularly developed (at least once a week), and the densitometric reading should be compared with the reference strip.

3. Processing in minilabs

3.1 Process AP94 (Standard RA-4)

Process solution	Time (s)	Temp. (°C)	Replenisher (VR: dilution)	Replenishment rates (ml/m ²)
Developer	45	35 ± 0.3 ²⁾ 37 ± 0.3 ²⁾	94 CD-LR	160
			94 CD-LOR	70
Bleach-fix	45	33 ± 3	94 BX-VR (2+8)	160-215
			94 BX-VR (2+5)	108
			94 BX-VR (2+3)	70
			94 BX-VR (2+2)	55
			94 BX-MR (2Parts)	215
Stabilizer ¹⁾	4 x 22.5 3 x 30	33 ± 3 33 ± 3	94 SB-R	200
			94 SB-R	360

(1) All the tanks must be arranged in a cascade and have their own circulation and heating systems.

(2) The exact temperature is based on the processed control strips and must be kept constant ± 0.3 °C.

3.2 Process AP94 (Fast processing)

For machines with shorter processing times the temperatures and/or replenishment rates has to be adjusted according the control strip result. In particular the **MSC-Paper chemicals** are suited for fast processing and low replenishment rates.

Process solution	Time (s)	Temp. (°C)	Replenisher (VR: dilution)	Replenishment rates (ml/m ²)
Developer	25-35	37- 40 ²⁾	94 CD-LR	160
			94 CD-LOR	70-110
Bleach-fix	25-35	37 - 40	94 BX-VR (2+4)	108
			94 BX-VR (2+2)	70
			94 BX-MR (2Parts)	215
Stabilizer ¹⁾	4 tanks 3 tanks	37 ± 3 37 ± 3	94 SB-R	200
			94 SB-R	360

(1) and (2) see 3.1 Standard process

Process solution	Time (s)	Temp. (°C)	Replenisher (VR: dilution)	Replenishment rates (ml/m ²)
Developer	20-25	37- 40 ²⁾	94 CD-LOR	110-160
Bleach-fix	20-25	37 - 40	94 BX-VR (2+4)	108
			94 BX-VR (2+2)	70
Stabilizer ¹⁾	4 tanks 3 tanks	37 ± 3 37 ± 3	94 SB-R	200
			94 SB-R	360

(2) and (2) see 3.1 Standard process

Conversion to AP 94-LOR from 94 CD-LR

- Freshly mixed tank solution is recommended for CD-tank solution
- It is possible to directly replenish in the 94 CD without correcting the tank solution. Until the tank has completely turned over, it is necessary to adjust the developer temperature, in steps, according to the sensitometric results (e.g. raise the temperature from 35°C to 37°C).

3.3 Supplementary instructions for processing

Replenishment rate

The replenishment rates must be set exactly, and then regularly monitored. To carry out a check, run the replenisher into a graduated cylinder while a certain quantity (in m²) of colour paper is being fed through, and after checking the volume slowly return the solution to the tank.

Take into account that the replenishment rates of BX and SB has to be increased if the carry-over is higher than 45ml/m².

Compensation evaporation

If the minilab does not have an automatic evaporation compensator, add about 100 ml water to each tank daily.

Process with washing

Instead of the stabilizer a wash can also be used as follows. The volume of water required for washing will depend on the setup of the tank. The figure can be reduced by using a cascade washing system:

Two tanks in counter-current	6 l/m ²
Three tanks in counter-current	4 l/m ²
Four tanks in counter-current	2 l/m ²

4. Mixing instructions for replenishers

For mixing the replenishers we recommend a water temperature of approx. 30°C. Use part of the mixing water for rinsing out the chemical containers. This removes chemical residues, making it easier to reuse the containers properly.

Volumes of Agfa minilab replenisher tanks

Agfa Minilab	Developer (CD)	Bleach-fix (BX)	Stabilizer (SB)
MSC 3 / MSC	20 litres	20 litres	20 litres
MSC 2	10 litres	10 litres	10 litres
CLS 23	10 litres	10 litres	10 litres
CLS 13	12 litres	12 litres	12 litres

4.1 AP 94 (Standard RA-4)

Mixing 94 CD-LR replenisher (1Part) for 10 l

for	10 litres
1. Water first	9 litres
2. Add 94 CD-LR (1Part)	1 pack for 10 litres

Mixing 94 CD-LR replenisher (2Parts) for 100 l

for	100 litres	1 litre
1. Water first	90 litres	900 ml
2. Add 94 CD-LR / Part A	1 pack for 100 l	50 ml
3. Add 94 CD-LR / Part B	1 pack for 100 l	50 ml

Mixing 94 CD-LOR replenisher (1Part) for 10 l

for	10 litre
1. Water first	9 litres
2. Add 94 CD-LOR (1Part)	1 pack for 10 litres

Mixing 94 CD-LOR replenisher (2Parts) for 100 l

for	100 litres	1 litre
1. Water first	90 litres	900 ml
2. Add 94 CD-LOR / Part A	1 pack for 100 l	50 ml
3. Add 94 CD-LOR / Part B	1 pack for 100 l	50 ml

Mixing 94 BX-VR replenisher (1Part) (2+8 = 10 litres) *

For replenishment rate	160 – 215 ml/m ²
1. Water first	8 litres
2. Add 94 BX-VR (1Part)	1 pack (2 litres)

Mixing 94 BX-VR replenisher (1Part) (2+5 = 7 litres) *

For replenishment rate	108 ml/m ²
1. Water first	5 litres
2. Add 94 BX-VR (1Part)	1 pack (2 litres)

Mixing 94 BX-VR replenisher (1Part) (2+3 = 5 litres) *

For replenishment rate	70 ml/m ²
1. Water first	3 litres
2. Add 94 BX-VR (1Part)	1 pack (2 litres)

Mixing 94 BX-VR replenisher (1Part) (2+2 = 4 litres) *

Replenishment rate	55 ml/m ²
1. Water first	2 litres
2. Add 94 BX-VR (1Part)	1 pack (2 litres)

*After long storage time the 1 Part bleach-fixer loses his dark red color and brightens up to a light red. The effect is invertible and reverses on contact with air, which makes it utilisable again.

Mixing 94 BX-MR replenisher (2Parts) for 100 l

for	100 litres	1 litre
1. Water first	75 litres	750 ml
2. Add 94 BX-MR / Part A	2x5 litres	100 ml
3. Add 94 BX-MR / Part B	15 litres	150 ml

Mixing 94 SB-R replenisher (dosage bottle)

for	20 litres	10 litres
1. Water first	19.8 litres	9.9 litres
2. Add 94 SB-R	200 ml	100 ml

Mixing 94 SB-R replenisher for 100 l

for	100 litres	1 litre
1. Water first	99 litres	990 ml
2. Add 94 SB-R	1 litre	10 ml

4.2 AP 94 (Fast processing)

Mixing 94 94 BX-VR replenisher (1Part) (2+4 = 6 litres) *

For replenishment rate	108 ml/m ²
1. Water first	4 litres
2. Add 94 BX-VR (1Part)	1 pack (2 litres)

Mixing 94 94 BX-VR replenisher (1Part) (2+2 = 4 litres) *

For replenishment rate	70 ml/m ²
1. Water first	2 litres
2. Add 94 BX-VR (1Part)	1 pack (2 litres)

*After long storage time the 1 Part bleach-fixer loses his dark red color and brightens up to a light red. The effect is invertible and reverses on contact with air, which makes it utilisable again.

5. Mixing instructions for tank solutions

5.1 AP 94 CD-tank solution

Mixing 94CD-tank solution from 94 CD-LR (1Part) for 10 l

for	10 litres	1 litre
1. Mixed replenisher 94 CD-LR	7 litres	700 ml
2. Add PAPER CD-S UNIVERSAL	200 ml	20 ml
3. Fill up with water	2.8 litres	280 ml

The **direct** mixing of tank solution with the 94 CD-LR (1Part) concentrate and Starter is not possible.

Mixing 94CD-tank solution from 94 CD-LR (2Part) for 100 l

for	10 litres	1 litre
1. Water	9.1 litres	910 ml
2. Add 94 CD-LR / Part A	350 ml	35 ml
3. Add 94 CD-LR / Part B	350 ml	35 ml
4. Add PAPER CD-S UNIVERSAL	200 ml	20 ml

Mixing 94CD-tank solution from 94 CD-LOR (1Part) for 10 l

for	10 litres	1 litre
1. Mixed replenisher 94 CD-LOR	4 litres	400 ml
2. Add PAPER CD-S UNIVERSAL	750 ml	75 ml
3. Fill up with water	5.25 litres	525 ml

The **direct** mixing of tank solution with the 94 CD-LR (1Part) concentrate and Starter is not possible.

Mixing 94CD-tank solution from 94 CD-LOR (2Part) for 100 l

for	10 litres	1 litre
1. Water	8.75 litres	875 ml
2. Add 94 CD-LOR / Part A	250 ml	25 ml
3. Add 94 CD-LOR / Part B	250 ml	25 ml
4. Add PAPER CD-S UNIVERSAL	750 ml	75 ml

5.2 AP 94 BX-tank solution

Option 1:

Mixing 94 BX-tank solution from 94 BX-VR (1Part)

for	10 litres	1 litre
1. 94 BX-VR (1Part)	2 litres	200 ml
2. Add BX-STARTER UNIVERSAL	500 ml	50 ml
3. Fill up with water	7.5 litres	750 ml

Option 2:

Mixing 94 BX-tank solution from 94 BX-VR (1Part)

for	10 litres	1 litre
1. 94 BX-VR (1Part)	2.5 litres	250 ml
2. Fill up with water	7.5 litres	750 ml

3. Re-circulation in processor tank for at least 8 hours before use!

Mixing 94 BX-tank solution from 94 BX-MR (2Part) for 100 l (tank solution = replenisher)

for	10 litres	1 litre
1. Water first	7 litres	700 ml
2. Add 94 BX-MR / Part A	1 litre	100 ml
3. Add 94 BX-MR / Part B	1.5 litres	150 ml

5.3 AP 94 SB-tank solution

Mixing 94 SB-tank solution from 94 SB-R (dosage bottle) and for 100 l (tank solution = replenisher)

for	100 litres	1 litre
1. Water first	99 litres	990 ml
2. Add 94 SB-R	1 litre	10 ml

6. Storage life, pH and specific gravity of mixed solutions

Storage life of mixed solutions

Process	Life in tanks or storage containers	
solution	Tank solution	Replenishers freshly mixed
Developer	1 week	6 weeks*
Bleach-fix	2 weeks	6 weeks
Stabilizer	3 weeks	8 weeks

* with floating lid

The figures given for the lives of solutions are intended only as guides. Their service depends on the methods used in the lab (percentage turnover of tank solution and replenisher in a week, state of processor, cleanliness of processing etc.), and must be found individually for each processor by developing control strips regularly.

pH and specific gravity of freshly mixed solutions (at 20°C)

Processing solution	Designation	pH	Specific gravity
Developer replenisher	94 CD-LR (1Part)	10.75	1.027
	94 CD-LR (2Parts)	10.7	1.034
	94 CD-LOR (1Part)	11.9	1.029
	94 CD-LOR (2Parts)	11.9	1.035
Developer tank solution	from 94 CD-LR (1Part)	10.2	1.022
	from 94 CD-LR (2Parts)	10.2	1.022
	from 94 CD-LOR (1Part)	10.2	1.027
	from 94 CD-LOR(2Parts)	10.3	1.030
Bleach-fix replenisher	94 BX-VR (1Part) (2+8)	5.5	1.046
	94 BX-VR (1Part) (1+1)	5.2	1.112
	94 BX-MR (2Parts)	5.95	1.064
Stabilizer replenisher (tank solution = 94 SB-R replenisher)		6.6	1.001

7. Further Information

The information given here is based on the evaluation of typical products at the time when this technical data was made. Slight deviations are possible through production tolerances. a&o imaging solutions is constantly endeavouring to improve the quality of the products and therefore reserves the right to alter the product specifications without notice.

Notification of any technical changes, such as replenishment rate or mixing instructions, will be given immediately in the package inserts and will be updated in all publications.

8. Relation between CD-tank size, average paper consumption and recommended processing chemicals

Average paper consumption/day		CD-Tank size (litres) / Example of machines (approx. tank volumes)					
		5	10	15	20	30	50
m ² /day	= 4' x 5' prints/day			N 3000 N 3001 N 3203 N 3301/3302 N 3311/3312	Agfa MSC2 N 2701 N 2901 N 3201/3202 N 3203	Agfa MSC3 N 3101	
2 m ²	133	LR	LR	LR	LR	LR	LR
5 m ²	333	LOR	LOR	LR	LR	LR	LR
8 m ²	533	LOR	LOR	LOR	LR	LR	LR
10 m ²	666	LOR	LOR	LOR	LOR	LR	LR
15 m ²	1000	LOR	LOR	LOR	LOR	LOR	LR
20 m ²	1333	LOR	LOR	LOR	LOR	LOR	LR
30 m ²	2000	LOR	LOR	LOR	LOR	LOR	LOR

N = Noritsu

LOR = 94 CD LOR / 94 BX-VR (low replenishment rate) recommended.

LR = 94 CD-LR / 94 BX-VR (medium replenishment rate) recommended.

LR = 94 CD-LR / 94 BX-VR (high replenishment rate) recommended, increased replenishment rate for CD-LR might be necessary (according to process control results).

LR = 94 CD-LR / 94 BX-VR, in cases of very low throughput even an increased replenishment rate could lead to sensitometric problems. New tank solutions would have to be made whenever process control results show that they have become strongly oxidised.

The figures given in the table are intended only as guides. Their application depends on the machine characteristics (volume of replenisher tanks, floating lids, daily times of heating the tank solutions, cleanliness of processing etc.), and must be established individually for each processor by regular processing and reading of control strips.

9. AP94 chemical range for processing in minilabs

Processing solution	Product name	Pack size	Yield	Code
Colour developer replenisher LR	94 CD-LR (1Part)	for 6 x 10 l	375 m ²	5F16E
	94 CD-LR (2Parts)	for 100 l	625 m ²	5GYL6
Colour developer replenisher LOR	94 CD-LOR (1Part)	for 4 x 10 l	571 m ²	5F17G
	94 CD-LOR (2Parts)	for 100 l	1428 m ²	5H4L1
Colour developer starter	PAPER CD-S UNIVERSAL	2 x 3 l	for 80 - 100 l fresh CD-tank solution	5UBT5
Bleach-fix replenisher VR	94 BX-VR (1Part)	for 6 x 4-10 l	279 m ² - 436 m ²	5UBU7
Bleach-fix replenisher MR (2Parts)	94 BX-MR / Part A	for 100 l	465 m ²	5KJ6B 5KJ58
	94 BX-MR / Part B	for 100 l		
Bleach-fix Starter	BX-STARTER UNIVERSAL	2 x 3 l	for 2 x 60 l	5UA9X
Stabilizer replenisher	Dosage bottle 94 SB-R	2 x for 20 x 10 l	2 x 1000 m ²	5LQGX
Stabilizer replenisher	94 SB-R	for 6 x 100 l	3000 m ²	5MA3N