



TECHNICAL INFO SHEET

FUJIFILM CN16L Minilabs

Low Throughput

INTRODUCTION

In recent years film volumes have declined dramatically, and many (perhaps even most) minilabs are processing less than 10 films per day - or even less than 5 films per day, yet wish to continue to operate their film processors. Conventional CN16 developers from FUJIFILM or other suppliers have all been designed with the levels of film throughput found in the 1980's and 1990' s - not the levels that are seen now.

These conventional developers, even the higher replenishment rate version such as FUJIFILM CN-16Q N1 Developer, are perfect if you have enough film to use the same amount of developer replenisher in 2-3 weeks as the volume of the developer tank in your processor. This is what these developers were designed for. But now, with current film volumes, most laboratories just do not get enough film to do this.

Typical processing conditions now found in many minilab and other processors show low or very low contrast coupled with high or very high DMin (base stain). This results in a compressed tonal range, with loss of detail in both highlights and shadows. This inevitably results in considerable and often serious reduction in print (and digital scan) quality, even with the latest Fuji Frontier and other digital minilabs. The less films you process, the worse it gets. Just allowing the film process to get worse and worse will simply mean that customers will no longer bring them their films, and film volumes will decrease even further. Until now, the only workable solution has been to dump the developer working tank - and sometimes the replenisher as well - and replace with fresh solution. Since 2008 there is a better way!

If a laboratory makes a 10 litre mix of developer, but takes more than 3-4 weeks or more to use it, you really must do something!

EnviroNeg Developer 60 AC is specially designed for use in all types of film minilabs, including the FUJIFILM CN16 minilabs, that are having problems with low throughput.

This 3-part developer is odour free, and part of our Air Control product range. It has been designed to give greatly improved resistance to oxidation and low throughput conditions, providing much improved process stability and quality and greatly extending the bath lifetime. Under all but the most extreme low throughput conditions, proper use of this new developer will avoid any requirement for developer retanking – previously necessary to retain process activity.

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DEVELOPER SELECTION

Normally you should use the specific process that is designed for each machine i.e. for negative: CN-16Q, CN-16FA, CN-16L, CN-16S .

However, if you do have low throughput it is better to ensure that you use a high replenishment rate developer. For FP film minilabs this means changing from CN-16FA or CN-16L N1 developer to CN-16Q N1 (don't forget to change the replenishment rate!). This can be done very simply and without retanking – with minimal impact on your minilab operation and great improvement in quality.

Where you have exceptionally low throughput you may even want to consider changing to FUJI HUNT EnviroNeg Developer 60 AC in place of Fuji CN-16Q.

Please consult your FUJIFILM representative about these low throughput options for your minilab.

The following table can be used to select the most appropriate products for your processor.

Tank Size									
50 L	NR	NR	NR	NR	NR	0	0	1	
40 L	NR	NR	NR	NR	0	0	0	1	
30 L	NR	NR	NR	0	0	0	1	1	
25 L	NR	NR	NR	0	0	0	1	1	
20 L	NR	NR	0	0	0	1	1	2	
15 L	NR	NR	0	0	1	1	2	3	
10 L	NR	0	1	1	2	2	3	3	
5 L	0	1	1	2	2	3	3	3	
	2	3	7	10	15	20	25	35	Films/day

- NR** = not recommended
- 0** = see "Very Low Throughput" on page 3
- 1** = EnviroNeg Developer Replenisher 60 AC @ 60ml/135-24
- 2** = Fuji Film CN 16Q
- 3** = Fuji Film CN 16L

Please note that the recommendations in this chart depend on good working practices by the laboratory (see further), but provide a good starting point. Although it is possible to use EnviroNeg Developer 60AC with high film volumes, you are recommended to use the standard replenishment rate developer CN16Q instead if high film volumes are maintained for an extended period.



BLEACH AND FIXER AND STABILIZER

For all FUJIFILM minilab film processors using standard CN16 replenisher chemistry (i.e. all those not using special cartridges), one should to maintain the recommended Bleach and Fixer and Stabilizer as designed for your processor.

Although for expert users with good operational skills of the minilab we can recommend the following alternatives when the processor is running under low throughput conditions :

- *The replenishment rate of the bleach can be increased by about 50% , if the Bleach Replenisher solution is diluted by 30%. This means for the CN16L or FA Replenisher to mix 2 Liter Replenisher with 600 ml water and pour into Replenisher tank.*
- *The replenishment rate of fixer and stabiliser can be increased by about 50% when the processor is running under low throughput conditions. This means replenish at 50 ml/135-24 film for Negacolor RA Fixer instead of 35 ml/135-24. Product mixing is unchanged from standard.*

VERY LOW THROUGHPUT

EnviroNeg Developer 60 AC has been designed to allow good quality C41 film processing in the range shown in yellow on the graph on page 2 – which covers most low throughput situations. If your film throughput is even lower – in the green region shown on the graph above – it is still possible to run a satisfactory film process by increasing the replenishment rate by 15% from the standard low throughput recommendations. You will never have a perfect process with such low film volumes, but the results are very much improved from any other options you have available other than frequent processor retanking, and very acceptable for obtaining good quality prints. Bath temperatures remain unchanged.

GOOD LABORATORY WORKING PRACTICES

Please note that good working practices by the laboratory provide a a more stable process : proper Developer Replenisher storage (see further), running only at normal (or even limited) operating hours , compensation for evaporation, etc.

Developer Replenisher Storage

To prevent excessive oxidation of developer replenisher, it is highly recommended that you only mix only the minimum volume of developer at one time (no multiple 5L packs for example), in order to give minimum time that the developer replenisher will remain in the replenisher tank. If your replenisher tank is significantly larger then 25L, as may well be the case in a prolab environment, it is recommended that you exchange this tank for a smaller one more appropriate to current film volumes.

Please Note : Successful operation of ANY FUJIFILM CN16 processor under low throughput conditions ABSOLUTELY REQUIRES use of plastic balls or pellets in your minilab developer replenisher tank, or a floating lid (or balls) in the developer replenisher tanks for other processors. A large part of the problem of developer oxidation is due to oxidation of the replenisher long before it



even gets to the working tank. If your replenisher is oxidised you are in trouble from the start! This protection is only required for the developer replenisher, not the other baths.

SUMMARY

The use of EnviroNeg 60 Developer (and EnviroNeg Bleach 10 for C41RA minilabs) will go a long way to help with improving process quality and reducing process control problems, and also avoid the need for frequent chemistry dumps and retanks. The chemistry will cost you more per film processed than standard chemistry, but this cost is more than offset by the chemistry and time saved in not having to regularly dump and remix your chemistry - and you get a greatly improved process as part of the deal. You will be able to offer a good or very good quality film process instead of producing flat, thin negatives and very poor quality prints.

PRODUCT INFORMATION

CN16L Process product range (high production volume)

Cat N°	Product	Size (To make)	Temp	Rep Rate (ml/135-24)
972 901	FJ CN16L N1-S	6 x 10 L		
957 589	FJ CN16L N1CR Colour Developer Replenisher	4 x 5 L	38.0	21
954 438	FJ CN16L N1CR Colour Developer Replenisher	2 x 10 L	38.0	21
992 966	FJ CN16L N2R Bleach Replenisher LQ	4 x 2 L	38.0	5
958 694	FJ CN16L N3R Fixer & Replenisher	4 x 2 L	38.0	10
961 847	FJ Superconditioner Tablets - 100 pieces	100 x 5L	38.0	34
990 598	FJ CN-16 N4-R Safer Stabilizer	2 x (8Lx12)	38.0	20

CN16L Process product range (low production volume)

Cat N°	Product	Size (To make)	Temp	Rep Rate (ml/135-24)
972 893	FJ CN16Q NQ1S	6 x 12 L		
931 246	FJ CN16Q NQ1RS Developer Replenisher	4 x 5 L	38.0	45
922 757	FJ CN16Q1R Colour Developer Replenisher	2 x 10 L	38.0	45
992 966	FJ CN16L N2R Bleach Replenisher LQ	4 x 2 L	38.0	10
958 694	FJ CN16L N3R Fixer & Replenisher	4 x 2 L	38.0	34
961 847	FJ Superconditioner Tablets - 100 pieces	100 x 5L	38.0	34
990 598	FJ CN-16 N4-R Safer Stabilizer	2 x (8Lx12)	38.0	20

CN16L Process product range (very low production volume)

Cat N°	Product	Size (To make)	Temp	Rep Rate (ml/135-24)
972 497	EnviroNeg Universal Developer Starter AC	6 x 1 L conc		
998 518	EnviroNeg Developer Replenisher 60 AC	2 x 5 L	37.8	60
992 966	FJ CN16L N2R Bleach Replenisher LQ	4 x 2 L	38.0	10
958 694	FJ CN16L N3R Fixer & Replenisher	4 x 2 L	38.0	34
961 847	FJ Superconditioner Tablets - 100 pieces	100 x 5L	38.0	34
990 598	FJ CN-16 N4-R Safer Stabilizer	2 x (8Lx12)	38.0	20

MIXING INSTRUCTIONS - REPLENISHER

Process	Product	To Mix	Water	+ Parts
FUJIFILM CN-16L	N1-CR Colour Developer	5L	4L	+ A+B+C
	N1-CR Colour Developer	10L	8L	+ A+B+C
	N2-R Bleach	4L	-	2 x A
	N3-R Fixer	4L	-	2 x A
	NS-R Super Rinse ⁽¹⁾			
	N4 Safer Stabilizer ⁽²⁾	4L	4L	+ 40ml dosing
	N4 Safer Stabilizer ⁽²⁾	8L	8L	+ 80ml dosing
EnviroNeg Developer Replenisher 60 AC	EnviroNeg Dev Rep 60 AC	5L	4,32 L	+ A+B+C

⁽¹⁾ 5L NS-R is made using 5L demineralised water + 1 FSC 100 tablet

⁽²⁾ N4 Safer Stabilizer is available in a dosing bottle. Fill the indicated amount into the measure on the dosing bottle for preparation of new working solution.

MIXING INSTRUCTIONS - PROCESSING TANK SOLUTION

To make 1 Liter :

FUJIFILM CN-16L	Replenisher	Water	starter
N1 Colour Developer	747ml N1-R	198ml	55ml N1-S
N2 Bleach	667ml N2-R	333ml	
N3-1 Bleach-Fix	385ml N3-R	577ml	38ml N2-R
N3-2 Fixer	333ml N3-R	667ml	
NS Super Rinse	= NS-R		
N4 Safer Stabilizer	= N4-R		

EnviroNeg Developer Replenisher 60 AC	Replenisher	Water	starter
EnviroNeg Dev Rep 60 AC	800 ml	185	15 ml EnviroNeg Universal Starter AC