

FUJICOLOR NEGATIVE FILM PROCESSING CHEMICALS CN-16S for Minilabs

1. INTRODUCTION

The FUJICOLOR NEGATIVE FILM PROCESSING CHEMICALS CN-16S for Minilabs constitute a type of chemical system that uses cartridges. Designed for dedicated use on the FP363SC/FP563SC/FP150SC, these chemicals enable one-touch loading and automatic solution preparation, making processing work easy and safe. In addition, the smaller kit size and thinner containers reduce the volume of packaging materials to be disposed of, as well as the energy and CO₂ emissions during their production, transport and recycling. Such design aspects make these chemicals environmentally friendly.

Please note that these chemicals cannot be used in conventional minilabs.

2. FEATURES

(1) Simple and Clean

Once a cartridge is placed in the minilab, the minilab draws the chemicals from each container as needed, mixes the chemicals automatically which eliminates errors and prevents skin contact, and washes out the containers when they are empty.

(2) Compact

Through the use of a technology which produces highly concentrated chemicals, the cartridges are about half the volume and weight of the former ones, thus greatly reducing the space required to store chemicals.

(3) Environmentally friendly

The environmentally friendly containers in the cartridge are 100% recyclable and use half as much plastic as previous Fujifilm containers due to smaller dimensions and thinner walls. Fujifilm has improved manufacturing, transporting and recycling efficiency to reduce energy use and carbon dioxide emissions by up to 40% in comparison with its previous chemical system.

3. PACKAGING OF PROCESSING CHEMICAL COMPONENTS

The CN-16S processing chemicals consist of two types: a replenisher cartridge for solution replenishment and start-up chemicals for preparation of tank solutions.

Product		Code	Package Contents	Components
Replenisher Cartridge		NC1	2 Cartridges (NC1 x 2)	N1-RA, N2-R, N3-R
		NC2	2 Cartridges (NC2 x 2)	N1-RB, N4-R
Start-up Chemicals	Color Developer	N1	Makes 5.2 L	A chemical, B chemical, C chemical
	Bleach	N2	Makes 3.6 L	1 chemical
	Fixer	N3	Makes 3.6 L	1 chemical
	Stabilizer	N4	Makes 1.9 L	1 chemical
Fuji Super Conditioner		FSC100	Makes 5 L x 100	100 tablets

NOTE The processing capacity of one replenisher cartridge is 200 rolls of 135/24-exp. film for NC1, and 1,000 roles of the same film type for NC2.

4. STANDARD PROCESSING STEPS

Process CN-16S

No.	Step	Code	Time	Temperature (°C)	Replenishment Rate (ml/135-24 exp.)	Remarks
1	Color Development	N1	3 min 05 sec	38.0 ± 0.2	15	
2	Bleaching	N2	50 sec	38 (35 – 41)	5	aeration
3	Fixing	N3-1	50 sec	38 (35 – 41)		← ※1
4	Fixing	N3-2	50 sec	38 (35 – 41)	7.5	← ※2
5	Stabilizing	N4-1	30 sec	38 (35 – 41)		← ※3
6	Stabilizing	N4-2	20 sec	38 (35 – 41)		← ※4
7	Stabilizing	N4-3	20 sec	38 (35 – 41)	30	

※ 1: The N3-2 overflow enters N3-1.

※ 2: The N4-2 tank solution is pumped into N3-2.

※ 3: The N4-2 overflow enters N4-1.

※ 4: The N4-3 overflow enters N4-2.

5. MIXING INSTRUCTIONS FOR PROCESSING SOLUTIONS

The following procedure is used to mix the processing solutions for the FP363SC/FP563SC/FP150SC.

<Replenisher for the FP363SC/FP563SC/FP150SC>

Replenishment is done by loading the replenisher cartridge and replenishing the water.

Solution	Mixing Instructions
[NC1] N1-RA N2-R N3-R [NC2] N1-RB N4-R	<ol style="list-style-type: none"> ① Open the replenisher supply port cover 1 or 2 and remove the empty replenisher cartridge. NOTE: After gently detaching the cartridge, rotate it immediately so that the cap faces upward and then remove it from the compartment. If the cap faces downward, some of the residual solution may leak out (this poses absolutely no danger). ② Load a new NC1 or NC2 replenisher cartridge into the port. NOTE: Hold the cartridge with the cap facing downward, the arrow on the bottom of the cartridge pointing towards the machine, and the arrow on the side of the cartridge aligned with the “▲” indication inscribed on the left-hand side of the replenisher supply port. ③ Close the replenisher supply port cover. (The machine then mixes the replenisher solution automatically.)
[Water]	<ol style="list-style-type: none"> ① Open the water supply port cover. ② Remove the cap to the FSC supply port and insert one FSC100 tablet. ③ Add tap water into the water supply port. <ul style="list-style-type: none"> • Add 4 ℓ of tap water during normal operations. • Add tap water up to the rim of the water supply port at the time of machine installation. (Approximately 10 can be added. Adding one FSC100 tablet to this amount of water is sufficient.) ④ Put the cap back to the FSC supply port, then close the water supply port cover.

NOTE Water is used for preparing replenisher (as well as bottle washing and dilution) and for compensating for water evaporation.

<Tank Solutions for the FP363SC>

Tank solutions are prepared using the start-up chemicals and are mixed directly in the tanks.

Solution	Tank Capacity	Mixing Instructions
N1	10.3 L	① Add about 2 L of water and 2 bottles of A chemical into a 5-liter measuring cup, then pour the solution into the processing tank. ② Add about 2 L of water and 2 bottles of B chemical into a 5-liter measuring cup, then pour the solution into the processing tank. ③ Add about 2 L of water and 2 bottles of C chemical into a 5-liter measuring cup, then pour the solution into the processing tank. ④ Set the level gauge onto the shaft of rack N1, then add water up to the N1 line. (Approx. 2.3 L.)
N2	3.6 L	① Add about 1 L of water and 1 bottle of N2 chemical into a 5-liter measuring cup, then pour the solution into the processing tank. ② Set the level gauge onto the shaft of rack N2, then add water up to the N2 line. (Approx. 0.6 L.) NOTE: After the solution undergoes aeration at the time of machine installation, the message "Add 200 ml of water to the tank N2" may appear. Add 200 ml of water at this time.
N3-2	3.6 L	① Add about 1 L of water and 1 bottle of N3 chemical into a 5-liter measuring cup, then pour the solution into the processing tank. ② Set the level gauge onto the shaft of rack N3-2, then add water up to the N3-2 line. (Approx. 1.5 L.)
N3-1	3.6 L	① Add about 1 L of water and 1 bottle of N3 chemical into a 5-liter measuring cup, then pour the solution into the processing tank. ② Set the level gauge onto the shaft of rack N3-1, then add water up to the N3-1 line. (Approx. 1.5 L.)
N4-3	1.9 L	① Add about 1 L of water and 1 bottle of N4 chemical into a 5-liter measuring cup, then pour the solution into the processing tank. ② Set the level gauge onto the shaft of rack N4-3, then add water up to the N4-3 line. (Approx. 0.9 L.)
N4-2	1.9 L	① Add about 1 L of water and 1 bottle of N4 chemical into a 5-liter measuring cup, then pour the solution into the processing tank. ② Set the level gauge onto the shaft of rack N4-2, then add water up to the N4-2 line. (Approx. 0.9 L.)
N4-1	1.9 L	① Add about 1 L of water and 1 bottle of N4 chemical into a 5-liter measuring cup, then pour the solution into the processing tank. ② Set the level gauge onto the shaft of rack N4-1, then add water up to the N4-1 line. (Approx. 0.9 L.)

<Tank Solutions for the FP563SC>

Tank solutions are prepared using the start-up chemicals and are mixed directly in the tanks.

Solution	Tank Capacity	Mixing Instructions
N1	15.8 L	① Pour about 4 L of water into the processing tank. ② Add about 2 L of water and 3 bottles of A chemical into a 5-liter measuring cup, then pour the solution into the processing tank. ③ Add about 2 L of water and 3 bottles of B chemical into a 5-liter measuring cup, then pour the solution into the processing tank. ④ Add about 2 L of water and 3 bottles of C chemical into a 5-liter measuring cup, then pour the solution into the processing tank. ⑤ Set the level gauge onto the shaft of rack N1, then add water up to the N1 line. (Approx. 2.3 L.)
N2	3.9 L	① Add about 1 L of water and 1 bottle of N2 chemical into a 5-liter measuring cup, then pour the solution into the processing tank. ② Set the level gauge onto the shaft of rack N2, then add water up to the N2 line. (Approx. 0.9 L.) NOTE: After the solution undergoes aeration at the time of machine installation, the message "Add 200 ml of water to the tank N2" may appear. Add 200 ml of water at this time.
N3-2	3.6 L	① Add about 1 L of water and 1 bottle of N3 chemical into a 5-liter measuring cup, then pour the solution into the processing tank. ② Set the level gauge onto the shaft of rack N3-2, then add water up to the N3-2 line. (Approx. 1.5 L.)
N3-1	3.6 L	① Add about 1 L of water and 1 bottle of N3 chemical into a 5-liter measuring cup, then pour the solution into the processing tank. ② Set the level gauge onto the shaft of rack N3-1, then add water up to the N3-1 line. (Approx. 1.5 L.)
N4-3	1.9 L	① Add about 1 L of water and 1 bottle of N4 chemical into a 5-liter measuring cup, then pour the solution into the processing tank. ② Set the level gauge onto the shaft of rack N4-3, then add water up to the N4-3 line. (Approx. 0.9 L.)
N4-2	1.9 L	① Add about 1 L of water and 1 bottle of N4 chemical into a 5-liter measuring cup, then pour the solution into the processing tank. ② Set the level gauge onto the shaft of rack N4-2, then add water up to the N4-2 line. (Approx. 0.9 L.)
N4-1	2.5 L	① Add about 1 L of water and 1 bottle of N4 chemical into a 5-liter measuring cup, then pour the solution into the processing tank. ② Set the level gauge onto the shaft of rack N4-1, then add water up to the N4-1 line. (Approx. 1.5 L.)

<Tank Solutions for the FP150 SC>

Tank solutions are prepared using the start-up chemicals in a 5-liter measuring cup.

Solution	Tank Capacity	Mixing Instructions
N1	2.9 L	① Add about 4 L of water and 1 bottle of A chemical into a 5-liter measuring cup. ② Add 1 bottle of B chemical into a 5-liter measuring cup. ③ Add 1 bottle of C chemical into a 5-liter measuring cup. ④ Add about 0.2 L of water into a 5-liter measuring cup, then pour about 2 L of the solution into the N1 processing sub-tank. ⑤ Discharge the rest solution into the w1 drainage tank (alkali). (Approx. 2.3 L.)
N2	1.6 L	① Add about 1 L of water and 1 bottle of N2 chemical into a 5-liter measuring cup. ② Add about 0.6 L of water into a 5-liter measuring cup, then pour about 0.8 L of the solution into the N2 processing sub-tank. ③ Discharge the rest solution into the w2 drainage tank (acid). (Approx. 2.0 L.)
N3-2	1.5 L	① Add about 1 L of water and 1 bottle of N3 chemical into a 5-liter measuring cup. ② Add about 1.5 L of water into a 5-liter measuring cup, then pour about 1.5 L of the solution into the N3-2 processing sub-tank.
N3-1	1.5 L	① Pour about 1.5 L of the N3 solution into the N3-1 processing sub-tank. ② Discharge the rest solution into the w2 drainage tank (acid). (Approx. 0.6 L.)
N4-3	1.3 L	① Add about 3 L of water and 2 bottles of N4 chemicals into a 5-liter measuring cup. ② Add about 0.8 L of water into a 5-liter measuring cup, then pour about 1.3 L of the solution into the N4-3 processing sub-tank.
N4-2	1.2 L	① Pour about 1.2 L of the N4 solution into the N4-2 processing sub-tank.
N4-1	1.2 L	① Pour about 1.2 L of the N4 solution into the N4-1 processing sub-tank. ② Discharge the rest solution into the w2 drainage tank (acid). (Approx. 0.1 L.)

6. Management of Processing Solutions

<pH and Specific Gravity>

If the pH and Specific gravity of prepared processing solutions are not within the limits indicated below, the solutions cannot be used. If no mistakes have been made in the proper dilutions and chemical components, then the pH and specific gravity values of the solutions should be within the following limits.

Tank Solution

Solution	New Solution		Running Solution	
	pH	Specific Gravity	pH	Specific Gravity
N1	10.05 ± 0.05	1.039 ± 0.003	10.07 ± 0.05	1.044 ± 0.003
N2	3.8 ± 0.2	1.095 ± 0.015	4.4 ± 0.3	1.105 ± 0.020
N3-1	7.0 ± 0.2	1.09 ± 0.02	6.6 ± 0.2	1.11 ± 0.02
N3-2	7.0 ± 0.2	1.09 ± 0.02	6.6 ± 0.2	1.11 ± 0.02

Replenisher

Solution	pH	Specific Gravity
N1-RA	10.51 ± 0.05	1.055 ± 0.003
N1-RB	4.2 ± 0.2	1.006 ± 0.005
N2-R	3.8 ± 0.1	1.141 ± 0.010
N3-R	7.0 ± 0.1	1.271 ± 0.010

<Maximum Storage Duration>

Unit: Weeks

Tank Solution*		Replenisher	
N1	2	N1-RA	4
N2	2	N1-RB	17
N3-1	2	N2-R	4
N3-2	2	N3-R	4
N4-1	2	N4-R	17
N4-2	2		
N4-3	2		

Note

* Storage durations for unused solutions stored in tanks.

<Solubility and Precipitates>

When the tank or replenisher solution falls below 15 °C, the dissolved chemicals become less soluble and begin to precipitate out. Excessive precipitation may cause abrasions in the sensitized materials and/or equipment malfunction. It is therefore important to avoid an excessive drop in the storage temperature during the winter.

NOTICE The data published herein were derived from materials taken from general production runs. However, changes in specifications may occur without prior notice.