



**CatLABS of JP**  
Darkroom Resources and Service



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Thank you for choosing CatLABS C-413 bath chemistry kit.

This universal kit is specially designed to offer the best results with the time-proven rotary processing system. This is a highly reliable and consistent system, compatible with all C-41 type negatives, for processing at 100° F/38° C.

## Color Developer Capacity

	Roll film (35-36 frames / 120)	Sheet film (4X5)
5L Kit	60-80 rolls	120-160 sheets
10L Kit	120-160 rolls	240-320 sheets

## Bleach / Fix Capacity

	Roll film (35-36 frames / 120)	sheet film (4X5)
5L Kit	120-160 rolls	240-320 sheets
10L Kit	120-160 rolls	240-320 sheets

## Mixing

COLOR DEVELOPER **N1** - Mixing instructions (Water + part A + part B + part C): **Start with water, and add each part in sequence - A, then B, then C. Mix well after adding each part**

	Water (25°C-30°C) H2O	Part A	Part B	Part C	Working solution
To make 1L	830ml	130ml	20ml	20ml	1L
To make 5.2L	4330ml	670ml	100ml	100ml	5.2L

## Bleach, Fix, Stab mixing instructions:

	Stock solution	Water (25°C-30° C)	Ratio	Working solution
Bleach <b>N2</b>	700ml 2500ml	300ml 1100ml	2.33:1	1L (*X3) 3.6L (*X3)
Fixer <b>N3</b>	250ml 900ml	750ml 2,700ml	1:3	1L (*X3) 3.6L (*X3)
Stab/Final rinse <b>R4</b>	10ml 100ml	990ml 9900ml	1:99	1L 10L

(Smaller working solutions may be mixed as needed according to the same ratios.)

**\* X3** - Both the **Bleach** and **Fixer** working solutions are designed to be used at least 3 times. This makes the total capacity 3.6L X 3 = 10.8L (or 1L X 3 = 3L).

The Color Developer is designed for ONE-SHOT processing, but it may be used up to 3 times by adding 15 seconds to the development time for each additional run. This is only an approximation. Exact testing should be performed to meet each user's needs if the developer is to be used more than once.

**NOTE:** Be very careful not to contaminate your developer with bleach. Even one drop of bleach can contaminate an entire 5L container of developer. Bleach contamination will cause incomplete development and may result in unusable negatives.

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## Processing (Rotary processing/continuous agitation at 38° C or 100° F)

Step	Temperature	Time
Preheat*	(100° F/38° C) +/- 1	5'00"
Color Developer <i>N1</i>	(100° F/38° C) +/- 1	3'10"
Bleach <i>N2</i>	(100° F/38° C) +/- 3	1'00" - 1'15"
Rinse (water)	(100° F/38° C) +/- 10	1'00" (or fill and empty X3)
Fixer <i>N3</i>	(100° F/38° C) +/- 3	1'40" - 2'00"
Final wash (water)*	(86°-105° F/20°-40° C)	5'00"
Stabilizer **	(86°-105° F/20°-40° C)	1'00"

- This table takes into account approximately 10 seconds for pouring out solutions.
- Bleach *N2* Fixer *N3* times are the minimum required times and may be exceeded by up to 30%.

**\*Final wash:** Fill and empty every 30 seconds or wash with running water for at least 5 minutes. Colder water requires longer wash times.

**\*\*Stabilizer/final rinse:** 1L working solution can be used for up to 16 rolls of film, and can be stored for re used as needed.

**Note about processing times:** The times provided in this chart are a standard starting point for universal C-41 type negative processing.

**Push processing starting point:** Add 30 seconds to *N1* for each stop.

## Troubleshooting

Problem	Possible cause	Solution
Color density too low	Negative under-exposed	Check exposure in camera
Color density too low AND contrast too low, neutral density (mask) too high	Negative under-developed (development time too short or temp too low)	Increase development time and check process temperature
Mask brownish	Bleach <i>N2</i> time too short or too little bleach in tank	Re-Bleach <i>N2</i> and Fix negative, adjust quantities
White spots, milky streaks, or blotches after drying	Wetting agent too weak or rinse water too hard	Increase wetting agent solution strength or use boiled water for wetting agent/Stab solution and re-Stab negative
Mask color unusual, neutral density (mask) too dark, and max density too low	Color Developer <i>N1</i> contaminated by bleach	Discard contaminated developer and mix a fresh batch
Film buckled or curled when dry	Drying temp too high or too low	Adjust drying temp to prevailing conditions

## Shelf Life

	Stock solution, opened container	Mixed solution
Color Developer <i>N1</i>	3-4 months	6-8 weeks
Bleach <i>N2</i>	6 months	6 Months
Fixer <i>N3</i>	6 months	6 Months

The shelf life of opened concentrate containers can be increased by squeezing out the air and re-sealing the cap. Alternatively, store unmixed concentrates in WELL MARKED, completely full, and sealed containers to minimize oxidation and contact with air.

## Safety

Photochemistry is potentially poisonous.

Never store photochemistry in used soft drink or drinking water bottles. Always CLEARLY MARK the bottles if you move the concentrates to another container.

Use the same safety precautions when handling photo chemicals that you would use with any other potentially harmful product:

- Wear protective gear—gloves, apron, lab coat, safety goggles.
- Wash your hands thoroughly after working with chemicals.
- Never drink or eat while working with chemicals.
- Ensure sufficient ventilation in your work area.
- Avoid contact with skin and eyes.
- Do not ingest chemicals.
- Keep out of reach of children and pets at all times.
- Store away from food and drink stuffs at all times.
- Clearly mark and label all storage containers.

## First Aid

See container label for exact first aid instructions.

**Additional information available on MSDS sheets found at:**

[http://www.championphotochemistry.com/\\_uploads/products/msds/021709135156\\_CPI%20-%20CR120-E%2008.pdf](http://www.championphotochemistry.com/_uploads/products/msds/021709135156_CPI%20-%20CR120-E%2008.pdf)

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