Film Negative Processing

Signal chat: https://signal.group/#CjQKIHHhnsQAZbMd9t4TxumxNguOwY8Pckc5wvTLpSRjiPekEhBBZxKZvAOHUEsqgp912fH6

- Negative Processing Chemistry Research
- Negative Drying Cabinet
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Negative Processing Chemistry Research

Some links to lower-toxicity recipes for dev/stop/fix, with some price and source exploration:

Chems

Dev

Ascorbic Acid (vitamin C)

225g - $13 - ebay - $0.057/g

1000g - $40 - ebay - $0.040/g

500g - $23 - ebay - $0.046/g

450g - $35 - ebay - $0.077/g

225g - $17 - ebay - $0.075/g

450g - $20 - ebay - $0.044/g

900g - $30 - ebay - $0.033/g

Sodium Carbonate (Soda Ash)

500g - $40 - ebay - $0.080/g

680g - $37 - ebay - $0.054/g

1000g - $30 - ebay - $0.030/g

100g - $5 - ebay - $0.050/g

500g - $12 - ebay - $0.024/g

Stop

As the developer isn't as aggressive, we can get away with water bath for stop.

Fix (non-hardening)

Sodium thiosulfate (pentahydrate/crystalline)

400g - $37 - etsy - $0.0925/g

113g - $7 - ebay - 113g – $0.0619/g

2500g - $50 - ebay - $0.0200/g

1360g - $55 - ebay - $0.0404/g

1360g - $50 - ebay - $0.0368/g

450g - $15 - ebay - $0.0333/g

Sodium sulfite (anhydrous) - Increases shelf-life of fix, not necessary

30g - $40 - ebay - $1.33/g

500g - $150 - ebay - $0.30/g

500g - $50 - ebay - $0.10/g

450g - $30 - ebay - $0.07/g

450g - $23 - ebay - $0.05/g

225g - $16 - ebay - $0.07/g

450g - $14 - ebay - $0.03/g

100g - $10 - ebay - $0.10/g

Articles

https://petapixel.com/caffenol-developing-film-with-coffee/

https://www.35mmc.com/18/08/2020/polyphenol-developer-alternatives-a-world-full-of-options-by-daniel-keating/

Possibly with espresso given that we have coffee roasting and an espresso machine?

Personal Safety Risks

These chemicals have been selected for general low-toxicity, but risks and appropriate precautions exist.

Chemical	Risks	Precautions

Sodium carbonate (soda ash)	Alkaline irritant. Pure dust can irritate nose, throat and eyes. Working-strength solution (~2.7%, pH ~11) can dry or irritate skin on prolonged contact. Eye contact with powder or strong solution is main issue.	Gloves & eye protection appropriate for when scooping or pouring. If not gloved during mix, wash hands immediately afterwards. Rinse eyes with water for 15 min if splashed.
Ascorbic acid	Very low. Mild irritant as a dust.	Avoid raising/breathing dust.
Coffee	Effectively none.	
Sodium thiosulfate	Very low toxicity. Mild skin and eye irritant, and prolonged skin contact dries skin.	Gloves. Rinse eyes with water for 15 min if splashed.

Negative Drying Cabinet

(Can be used for drying other stuff too, esp. if further modified)

Initial Build

Started by finding a wooden cabinet on the street.
Removed a bunch of weird stuff attached too it, painted with coat of oil-based white paint.
Attached a tiny set of casters.
Tacked a strip of thin hook velcro to cabinet lip.
Glued wide soft velcro to vinyl sheet.
Taped to a metal tube to wrap/roll up front door.
Added wooden cross-supports to help keep vinyl from "collapsing" as much when opening/closing.
Attached printed hooks to hold ends of metal roll-tube.
Trimmed down some found tent-poles to interior cabinet width
Attached printed "comb" to hold cross-bars.

Currently

It's *ok*

- Not the greatest seal
- Not the easiest to open/close













Recipe and Instructions

2 reel tank

Dev

Ingredient	Amount (g)	Amount (volume)
Instant coffee	20g	
Ascorbic acid	5g	
Sodium carbonate	13.5g	
Water	400ml	for mix
Water	to 500ml	for topping off to tank volume

Fix

120g + 400ml water for mix, topped off to 500ml

Mix instructions

Target temp for all solutions is 20 deg C / 68 deg F

Dev

1. 400ml water, add soda while stirring. It will tend to clump if not stirred during mix, but breaks up with continued agitation.
2. Ascorbic acid. It may foam a bit when the ascorbic acid and soda meet, so go slowly.
3. Coffee.

Fix

The thiosulfate crystals dissolve slowly and chill the water as they go. Start with warm water (30-40°C) and stir.

Times & Temps

~15 minutes at 20°C
Agitation for the first 30 seconds and a few gentle inversions each minute.
Time varies by film, coffee strength, and temps.