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How to refill CLP-770nd and CLP-775nd cartridges

Before use, familiarise yourself with the safety information on pages 5 to 7.
Consider doing the refill on top of sheets of old newspaper in case of accidental spills.

Ignore "toner is low" message

Override "toner is worn" message and try to print till fade out

Refill at fade out … OR … "toner is empty" message

Firstly, pay no attention to the "toner is low" message (or any flashing red light).

Secondly, to get the value of your original toner and avoid refilling on top of large amounts of residual toner, **get around the "toner is worn" message as in the next section, then carry on printing until either the image begins to fade or you get the "toner is empty" message (when you won't be able to print anymore)**.

Overriding "toner is worn" (+red light on steady)

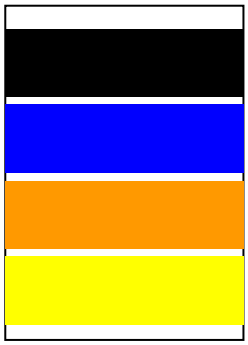
At this juncture, you can choose either **Stop**, **Continue** or **Mono Only** as shown on the control panel.

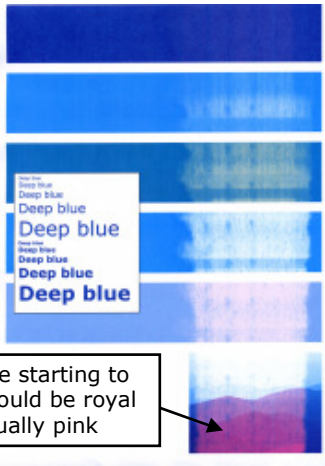
Choose continue and the machine will let you keep printing, which is what you want.

Now carry on printing until you either get toner fade out or the "toner is empty" message (at which point the machine refuses to print as well).
For full details and any slight variation in the messaging sequence for different models, see the "Control Panel Overview" and "Replacing the toner cartridge" sections of your user guide. The idea is, though, that we want to get the cartridge as empty as physically possible before attempting the refill procedure.

How to recognise fade out and be sure which cartridge is fading out

You'll see from your prints that something's fading, but depending on what you're printing, it's not always obvious which colour is the culprit. The mainly blue image right shows the kind of counter-intuitive effect you can get.
It's crucial to know which of the four cartridges to refill, so if you're not sure, print this 4 colour swatch. Download it from:
http://www.urefilltoner.co.uk/downloads/cmykVerticalTest.pdf





Cyan cartridge starting to fade. What should be royal blue is actually pink

Or you can roll your own, for example, in Microsoft Word:
Start a new document > View > Toolbars > make sure Drawing is ticked
Autoshapes > basic shapes > click the rectangle
Draw rectangle across whole width of page
Right click your rectangle > format autoshape > set fill colour from drop down box: black.
Repeat to make rectangles coloured blue, light orange and yellow.
Print the sheet a few times and identify the fading cartridge as follows:

Colours affected on swatch	Cartridge fading
Black only	Black
Blue only	Cyan
Blue and orange	Magenta
Yellow and orange	Yellow

Having identified the fading cartridge, just refill it according to the "How to refill it" section on page 2.

Important: only refill the cartridge that's showing signs of fading

Don't "top up" all the cartridges "while you're at it". The laundry list of things that can go wrong with this approach is as long and dreary as the websites that promote it. Make up your mind right now to just refill each individual cartridge when the time is right.

Protect green OPC drum while handling, keep from direct sunlight

Protect the green OPC drum at all times. Never expose it to direct sunlight and expose to ambient light as little as possible.

All cartridges come out high capacity

The new machine arrives with a set of standard yield cartridges (quoted as yielding 3,500 pages). You can subsequently buy 7,000 page high yield versions

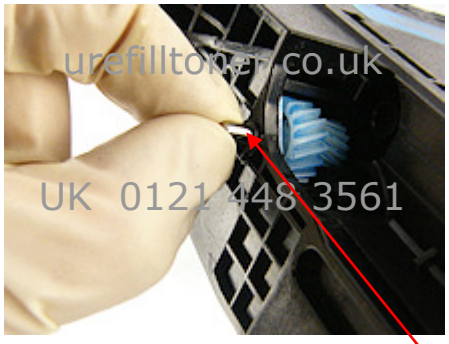
Whatever a cartridge started out life as, after being successfully refilled with this product, it will be equivalent to the 7K bought cartridge.

Don't update your firmware

The way the printer responds to chips can be modified by updating its firmware. **Do not allow the printer to update firmware across the internet**. Disable any default options to do this. Firmware updates can refuse to recognise our compatible chips. And if so, it's normally "game over" on refilling for an indeterminate length of time.

How to refill it

1) Identify steel pins at each end of cartridge



2) Place screwdriver into slotted area and gently ease pin up and out, pin can then be fully removed by hand
   Note: pin removed from cog/gearing end is longer
3) Identify small extension spring on each end as shown, remove both springs with pliers taking care not to let spring "fly off" thus getting lost on the floor

4) Cartridge can now be separated into two by lifting apart

5) On "bottom" half, identify refill plug. Place screwdriver under flange and lever out plug, it comes out easily – **do not** force screwdriver down side of plug.

6) Before opening toner bottle, shake vigorously.
7) To avoid leakage of microfine toner, wrap any kind of tape around join between spout and bottle: selotape, brown parcel tape, gaffa tape etc.
8) Hold cartridge at 45 degrees with one hand. Use other hand for bottle.

9) Keeping bottle below horizontal, bring spout to hole and up end bottle Bring cartridge and bottle up to vertical
10) Count to 10 while toner flows in.
11) Keeping spout near hole, rotate bottle down to below horizontal.
Care! Depending on aeration level of toner, it may only just fit in the cartridge. Take care as you pour, pausing generously to allow toner in cartridge to settle and shrink.
12) Cover end of spout firmly with finger and briefly shake bottle again. Repeat shake/pour until you can feel there's no toner in bottle when shaken.
13) Use alcohol swab to clean up any stray toner around hole.
14) Put plug back in
15) Re-assemble cartridge, top half just sits on top of bottom half.
16) Re-fit steel pins, remembering longer length pin fits into cog end of cartridge

17) Now re-fit the two small extension springs as shown.
18) Identify original chip. Peel away paper backing from replacement chip.

19) Press down firmly on top of existing chip with the longest contact plate on the left hand side as shown

Empty waste at end of 2nd refill
Or wait for streaks, then empty straight away
Emptying waste is messier than a refill

As these machines print, they produce waste toner. It's sneakily stored inside an empty chamber inside the toner cartridge. If the waste fills up completely, you'll start to get "waste streaks" like this cyan one vertically down the page (could also be black, pink or yellow of course, according to the colour of the cartridge).

For the CLP-770 family, this is highly likely to happen during the running of the third refill. So the preventative route, if you want to empty the waste, is to do it at the **end of the second refill**.

If you like to wing it, it ***is*** viable, to deliberately wait for the first signs of waste streaks and empty the waste at that point. Don't delay though. Very soon after the appearance of waste streaks, the compacted waste scratches the OPC drum and the cartridge is rendered useless - whether you then empty the waste or not.

We say "if" you want to empty the waste, because it's your call. Emptying the waste is messier than just refilling.

If you're up for it, though, here's how it's done:

1. Get a melting tool from urefilltoner.co.uk (in the manufacturer list, choose "Sundries", then click "Sundries" again)
2. Melt waste hole here

3. Shake waste toner straight into an outside bin: do not expose the green OPC drum to direct sunlight.
4. Wipe stray toner from cartridge surface with absorbent paper.
5. Outside of cartridge can optionally be cleaned with vacuum cleaner fitted with the "hairy" attachment. However, take great care not to scratch the very delicate green OPC drum surface and only perform surface cleaning: do not penetrate into crevices.
6. Use alcohol swab or absorbent paper to clean and prepare flat surfaces around hole.
7. Seal hole with any tape that's wide enough.

Three refills, and maybe then some

If you've delved into our website, you might know that we "put our corporate neck on the chopping block and say that the rule of thumb is **three refills, and maybe then some**".

As far as problems due to "wear and tear" go, the CLP-770 is an "and then some" cartridge.

Of course, some cartridges inexplicably give up the ghost early, probably due to small manufacturing imperfections. Others perform above and beyond the call of duty.

By aware though, that the more times a cartridge has been refilled, the more likely it is to fail for one kind of wear and tear related issue or another. We could write a moderately sized book about the different ways a toner cartridge can fail and what the associated symptoms are. Instead, here's another rule of thumb that'll save you most of the headaches we've had since 1992:

> **If you've got any kind of persistent print problem that boils down to toner being present on the page where you don't want it and emptying the waste doesn't fix it, then it's about the end of the road for that cartridge.**

The flip side to this is: don't refill a cartridge that has a "toner where it shouldn't be" print problem thinking more toner will fix the problem. On the contrary, at best, you'll just be able to print the undesired effect for much longer.

Use and safety of the melting tool

The tool needs at least 5 minutes to reach an efficient melting temperature.

To melt a hole, apply a light force similar to pressing on paper with a ballpoint pen. Ease off the pressure as the tool sinks into the plastic.

During the first 6 minutes of the first ever use, smoke will come out of the heated part of the tool as manufacturing lubricants burn off. This is normal.

Use a screwdriver to push out the residual plastic plug while the tool is still hot.

Occasionally, the plastic plug falls inside the cartridge. Try and get it out using tweezers or pliers if you can. A piece of plastic this size inside the toner compartment doesn't usually do any harm, but be aware that it's there and retire the cartridge if it shows signs of physically jamming.

Important safety information

- To be used only by a competent, risk-aware adult.
- Use only in a well-ventilated situation. As with the combustion of any organic substance (such as petrol or tobacco) a cocktail of gases can be produced and some of these are harmful or at least irritant.
- All metal parts of the tool get dangerously hot. Never touch any metal part of the tool, including the steel shaft near the plastic handle.

- When not in hand, the tool is designed to be rested at an angle created by the flange of the handle, keeping the hot parts suspended above your surface. But take care that the power cable doesn't force the handle to rise and the hot end of the tool to dip.
- Take care not to melt through the tool's own electric cable.
- Do not use the tool with the end-piece or blank filler tip removed.
- Turn off and unplug the tool as soon as you've melted your hole. Leave to cool at least 2 metres away from your toner pouring area.
- Do not leave on for more than 30 minutes at a time.
- After use, allow the tool to cool down naturally. Do not immerse in water.
- Take all precautions for the use of a powered hand tool. Use eye and hand protection.

Assumption of risk notice

We ourselves have no hesitation in researching and refilling cartridges using the melting technique in a well-ventilated room. However, the company gives no warranties, neither explicit nor implicit, as to the safety of melting holes in toner cartridges or the use of the melting tool. Any activity or process has an element of risk. The onus is on you, the purchaser, to assess any possible risk, including the inaccuracy or incompleteness of currently available information. If you decide not to go ahead, return the product to us and we'll cheerfully refund your money. This offer is additional to your statutory rights.

Safety Data Samsung CLP-770 type toner

Take maximum precaution when using a screwdriver as a lever: consider safety and protection of eyes and hands from sudden slippage or unexpected freeing of the tool.

Only to be used by a competent risk-aware adult. Not to be used by children. Avoid inhalation of product. Avoid eye and skin contact. Do not ingest. Avoid sources of ignition while pouring and at all times.

1 Identification of the substance and the company

Product name	Samsung CLP-770 type refill toner
Part no.	SA770BOTB, SA770BOTC, SA770BOTM, SA770BOTY
Supplier	U Refill Toner Ltd. Contact details as per page header

2 Hazards identification

Classification	Not believed to be classified as hazardous according to OSHA CFR 1910.1200 or EU Directive 1999/45/EC, as amended.
Acute health effects	
Skin contact	Unlikely to cause skin irritation
Eye contact	May cause irritation
Inhalation	Irritation to respiratory tract if exposed to large amounts of toner dust
Ingestion	Unlikely when used as intended. Acute oral toxicity is believed to be low
Potential health effects	
Routes of exposure	Skin contact, eye contact and inhalation. Ingestion unlikely.
Chronic health effects	Prolonged inhalation of excessive amounts of any dust may cause lung damage
Carcinogenicity	Carbon black is classified by IARC as group 2B (possible human carcinogen). Carbon black in this preparation, due it its bound form, is not believed to present this risk.

3 First aid measures

Inhalation	Move person to fresh air. If breathing is difficult, obtain medical assistance
Eye contact	Flush with plenty of low pressure water for at least 15 minutes. Do not rub eyes. Remove contact lenses to ensure thorough flushing.
Skin	Wash with water, obtain medical attention if ill effects occur
Ingestion	Rinse out mouth with water. Drink one or two glasses of water. If large quantity swallowed seek medical advice

4 Fire fighting measures

Hazardous combustion products	Carbon monoxide and carbon dioxide
Extinguishing media	Water, dry chemical, carbon dioxide or foam
Special fire fighting procedures	Avoid inhalation of smoke. A self contained breathing apparatus and suitable protective clothing should be worn.
Unusual fire & explosion hazards	Toner is a combustible powder; formation of an explosive dust-air mixture is possible. Avoid all ignition sources if toner has been dispersed in air.

5 Accidental release measures

Spill/leak procedure	Sweep up or vacuum spilled toner and transfer into sealable waste container. Sweep slowly to minimize generation of dust. If vacuum is used, the motor must be rated as dust tight and safely applicable to the vacuuming of toner dust. Residue can be removed with soap and cold water. Garments may be washed or dry-cleaned after removal of loose toner.
Environmental precautions	Do not flush into surface water or sanitary sewer systems. Dispose of waste material in accordance with all applicable laws.

6 Handling and storage

Handling	Keep containers closed when not in use. Handle and open containers with care. Use with adequate ventilation. Avoid inhalation of dust and contact with skin and eyes. Keep away from sources of heat, sparks and open flames.
Storage	Store at room temperature in the original container. Keep container tightly closed and dry. Do not store with strong oxidizers.

7 Exposure controls and personal protection

UK exposure guidelines	WEL: 10mg/m3 (inhalable dust), 3mg/m3 (respirable dust)
Personal protective equipment	
Eye / face	Wear dust resistant safety goggles if there is danger of eye contact
Hands / skin	Wear protective gloves
Respiratory protection	Wear approved respirator for dust when exposure exceeds permissible limits
Additional measures	Use in a well ventilated area. Use engineering controls to reduce air contaminants to permissible limits. Wash hands after use.

8 Toxicological information

Oral toxicity	Tests on toners have indicated there is no evidence of acute oral toxicity. Not classified for acute oral toxicity according to EU Directive 67/458/EEC and 1999/45/EC
Inhalation toxicity	No data
Eye irritation	Not classified as irritant according to OSHA HCS and EU 67/548/EEC as amended
Sensitization	Not classified as sensitizer according to OSHA HCS and EU 67/548/EEC as amended
Chronic toxicity	No data
Carcinogenicity	Carbon black is classified as a group 2B by IARC, but carbon black is present only in bound form in this preparation.
Mutagenicity	Negative (AMES test)
Reproductive toxicity	Not classified as toxic according to EU 67/548/EEC as amended

9 Ecological information

Not tested for ecological effects

10 Disposal considerations

Collect into tightly sealed containers. Dispose of waste in accordance with all local laws. Do not throw in open fires in order to prevent risk of dust explosion.

11 Transport information

General	Not regulated

12 Other information

Labelling EU 67/458/EEC	
R & S phrases	Not required
Hazard symbol	Not required

Notice. All safety information is given to help facilitate the safe use of this product and is based on information obtained from the manufacturer. This information is believed to be correct, but does not purport to be all-inclusive and shall only be used as a guide. U Refill Toner Ltd makes no warranty, express or implied, as to the accuracy or completeness of this information. It is the user's responsibility to determine the suitability of this information for the adoption of necessary safety precautions and / or compliance with local laws and regulations.

All information offered is believed to be true and is offered for consideration in good faith. However, U Refill Toner Ltd gives no warranties, neither explicit nor implicit as to the completeness or accuracy of any information offered nor the ultimate safety of refilling toner cartridges in any manner described or suggested nor the ultimate safety or hazardousness of products supplied by U Refill Toner Ltd. The onus is on the purchaser to evaluate all possible risk, including the possible incompleteness or inaccuracy of currently available information, and by proceeding to use the refill product or products, the purchaser thereby assumes all risk of peril or injury howsoever arising.

If you the purchaser decide not to go ahead with refilling for whatever reason, simply return the product or products to U Refill Toner Ltd and we will cheerfully refund your money. Your statutory rights are unaffected.

Please, tell three people what you've done

HP, we admit it. This is our begging act. Have you saved money by using our DIY kit? Did you feel a touch of pride as your cartridge *did* print again? Maybe you found some environmental satisfaction? Or perhaps you feel it should be refilled "because it's there".

We sincerely hope we've helped float your boat in some way. And if so, then please help our voice in the wilderness and tell at least three people about what you did with your empty cartridge. Why not send a link to urefilltoner.co.uk to some friends you know have printers?

The phrase "carbon footprint" hadn't been coined in 1992 when we started selling our trend-bucking "guerrilla re-cycling" products. Refilling with just toner ***more or less halves CO^2*** compared with making the toner plus the whole structure of a cartridge to put it in*.

We're asking for your support to create a kind of benign chain-reaction effect. Yes, we stand to make money from that, but we believe that the battle to reduce CO^2 output does have to be commercialised. That's to say, when the capacity of individuals to make voluntary self-sacrifice reaches a limit, what will take up the slack? In the same way that carbon big-foot companies need money to keep doing what they do, so does a carbon twinkle-toes.

Environmental organisations make us aware of a pyramid of priorities. **Re-use**, in the sense of directly using a resource again, is more beneficial than re-cycling (normally taken to imply an industrial process such as re-pulping paper fibre).

So, one last time for the planet, please advocate urefilltoner.co.uk if you feel our existence is preferable to our non-existence. Keep refilling in the free world.

*Sources:

Dr. M. Gell, "Carbon Footprints and Ecodesign of Toner Printer Cartridges", Xanfeon Energy & Environmental Services, UK, 2008. Dr. Gell calculates a 52% reduction in carbon footprint by refilling a cartridge 3 times and replacing the OPC drum once. We think the DIY refill case is even more favourable because the following carbon loads included in Dr. Gell's assumptions don't apply: manufacture/transport of replacement OPC drum, triple transport of empty cartridge to remanufacturing facility and energy consumed during remanufacturing at facility. In addition, the footprint of the delivery transport is smaller because toner weighs only a fraction of a whole cartridge.

Centre For Remanufacturing & Reuse (commissioning body), "The Carbon Footprint of Remanufactured Versus New Mono-toner Printer Cartridges". The authors conclude that, based on their data, a remanufactured mono (i.e. black & white laser printer) cartridge has a "46% lower carbon footprint than a corresponding new cartridge".

Berglind & Eriksson, "Life Cycle Assessment of Toner Cartridge HP C4127X", University of Kalmar, Sweden, 2002. The authors state (Abstract page I) that from the point of view of environmental load, "the re-use alternative is full measured two times better …". Although they point out that the main environmental load is, in fact, associated with paper.

Refills by you … thanks to you …..

Thanks for refilling the toner cartridges in your printer. We invented "do-it-yourself" toner refills in 1992, "melt & pour" in 1996 and put "unplug & pour" into internet-speak in 2002. We've never tried to patent or otherwise restrict the use of these ideas.

Now needed more than ever. Now refined more than ever.

- ✓ cut CO_2
- ✓ sabotage "designer waste"
- ✓ save money

http://www.urefilltoner.co.uk