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How to refill Samsung ML-1910, ML-1915, SCX-4600

Also compatible with ML-2525 / ML-2580 / SCX-4623.

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.

If refilling "starter cartridge", use about ½ bottle at a time

The machine arrives with a so-called "starter cartridge". It has less toner in than either the standard or high capacity cartridges that you can subsequently buy and so, of course, prints less copies.

Because our refill bottle and chip are aimed at producing a high capacity refill, not all our bottle will fit into the starter cartridge at once. To avoid spillage, use about half a bottle at a time when refilling the starter cartridge.

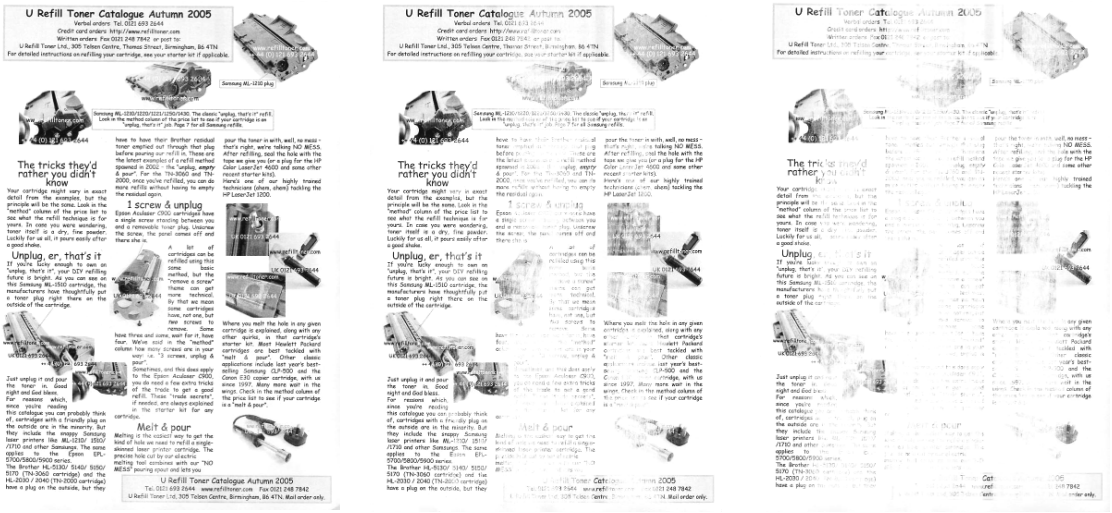
There are minor differences in the refill technique for the starter cartridge, which are taken care of in the flow of the instructions.

As far as the standard and high capacity cartridges go, when refilled with our bottle of toner, either will come out as high capacity (regardless of how it started out life).

Ignore "Replace with new toner cartridge", refill at fade out

Ignore or override any screen messages that start with *"Replace with new toner cartridge"*. Just keep printing until you get fade out from actual lack of toner powder in the cartridge: then refill it.

Typical fade-out due to lack of toner develops ***progressively*** as shown in these three prints.



As you can see, the faded area gets wider and more pronounced with each print, but even on the last very faded page, the print at the edges is still the same blackness as on the first print. If you take out the cartridge and give it a shake at this point, perfect print will return for a few more prints – but then the fade out will return again. This pattern of progressively widening fade out bands which can be temporarily cured by shaking is the hallmark of toner exhaustion.

For the easy life, just change the chip as you refill

This will always work and it minimizes the learning curve. It ends up being a few pounds more expensive in the long run. So for the easy life, just turn over the page and follow the instructions there to start refilling your cartridge.

If you want to save a bit more money and you don't mind a few more intricacies, read the special section on page 4 "How to run on a spent chip (for a while)".

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.

Invariably, firmware updates 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) Turn on melting tool and leave to warm up for 5 minutes (see page 5 for guidance on safe use of melting tool).
2) Identify area for melting hole.

Starter cartridge refill hole

Standard or hi cap cartridge refill hole

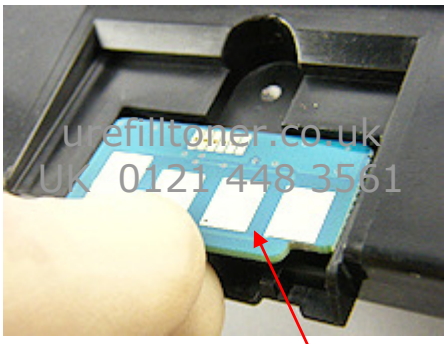
3) Melt your hole (see page 5 for guidance on safe use of melting tool). Press lightly. If tool is hot and hole is just in right position, hole will be made easily.
4) Before opening toner bottle, shake hard for 10 seconds.
5) To avoid leakage of microfine toner, wrap any kind of tape around join between spout and bottle: selotape, brown parcel tape, gaffa tape etc.
6) Hold cartridge upright with one hand. Use other hand for bottle.
7) Jam spout into vertical cartridge and, keeping spout jammed in with distinct pressure, lean cartridge back to about 45 degree angle.
   Note: if refilling starter cartridge, only use about half a bottle at a time

8) Wait for a count of 10 for toner to flow in.
9) Keeping spout in hole, rotate bottle down to below horizontal.
10) Hold finger firmly over end of spout and shake bottle again.
11) Repeat steps 7-10 until all toner is gone.
12) Use alcohol swab or absorbent paper to clean up any stray toner from the surfaces around hole. A cleaner surface will give a better seal.
13) Apply Gaffa tape patch as shown: starter cartridge bought cartridges

Press down hard on the flat surfaces to get the best seal possible given some interference from graphics ingrained into cartridge. Note: you might want to get some duct tape for sealing future refills, although any wide tape will do at a pinch.

P.T.O. >>>

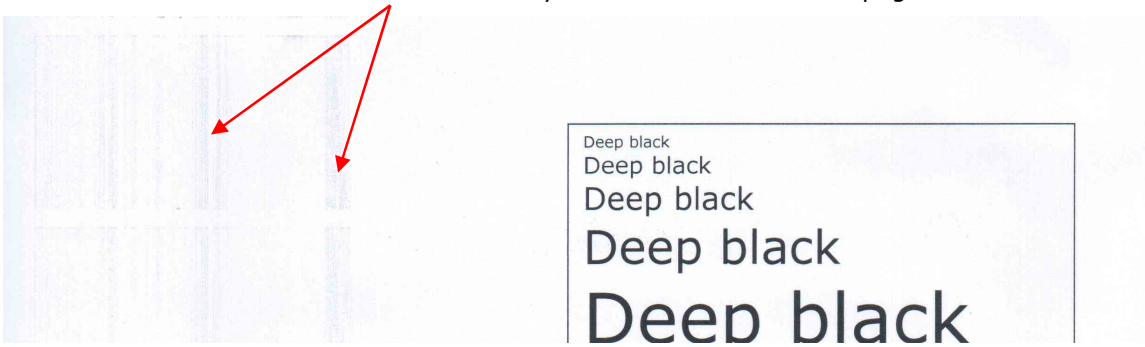
14) If you're changing the chip (see page 1), prise up the plastic cover after releasing the 2 lugs. Keep lifting cover until it breaks off.



15) Slot new chip into position as shown. We found that by being careful, we could put the cartridge back into the machine without putting the cover back on – but you have to be aware that's what you've done. For a more permanent fix, glue the plastic cover back into position.

Waste issue

The cartridges collect waste toner in a compartment which, eventually, fills up and causes print problems.
The symptom of waste overflow is black "skid marks" vertically down one section of the page.



If you seem to have that, you can empty the waste as shown in the next section.
If you do get skid marks, you need to empty the waste straight away if you're going to because the compacted toner will soon permanently scratch the OPC drum.
We say "if you're going to" because emptying the waste is inevitably more messy than just refilling: so it's a personal choice if you want to do it or not.
Waste overflow isn't expected before the end of the third refill (perhaps sooner if the cartridge was originally high capacity). It can be temporarily alleviated by shaking the cartridge gently from side to side.

How to empty the waste

You need a vacuum with the "hairy" attachment on. **Care**: using a high suction attachment like the crevice tool will damage internal sealing blades in the cartridge and cause irreversable leaking. Use the vacuum – with hairy attachment on – only for stray toner on the surfaces of the cartridge, not for substantial piles of toner for which it probably isn't suited.

1. Melt hole here.
2. Shake waste straight into an outside bin. Do not expose the OPC drum to direct sunlight.
3. Using hairy vacuum attachment, carefully clean up outside of cartridge.
4. Clean flat surface around hole with absorbent paper.
5. Seal hole with any wide tape.

How to run on a spent chip (for a while)

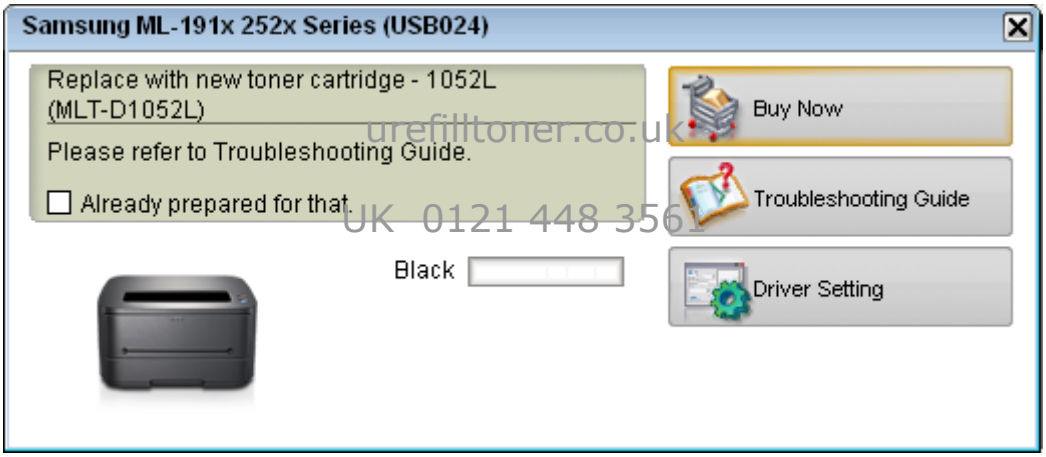
A chip is included with this refill kit to guarantee your satisfaction. But in fact we found it's possible to refill any cartridge for the first time without changing the chip and still get *some kind* of refill value.

Here's our complete data for where Samsung's killer chip stopped the refill from printing. You can save a few pounds by not changing any chips at all until the machine forces you to. Remember, our refill bottle is 80g.

Cartridge type	Weight of toner in original cartridge g	First refill weight of toner used before killer chip cut in g	Comment
Starter	21	34	About ½ of 80g refill
Standard	48	61	2/3 of 80g refill
High	73	80	All of first refill can be used up without having to change the chip

Although you can save a few pounds by not changing any chips at all until the machine forces you to, you'll end up out of step on the starter or standard cartridge and still have to fit a chip to use up the residual toner. Our top tip is to do the first refill of a high capacity cartridge without changing the chip. It'll let you use all the toner and then you can fit a chip for the next refill.

If you're running on a spent chip, before every print job you have to override the "*Replace with new ….* " message below by clicking the X top right. Also, ignore the continuously blinking red light.



Eventually you'll get a message that says "End of life ……." and the machine refuses to print. At that point you ***must*** change the chip to be able to keep printing.

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 ML-1910 type toner

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 ML-1910 type refill toner
Part no.	SA1910BOTB
Supplier	U Refill Toner Ltd. Contact details as per page header

2 Hazards identification

Acute health effects	N/A
Skin contact	Slight irritation
Eye contact	May cause irritation by mechanical abrasion
Inhalation	Irritation to respiratory tract
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. Treat as nuisance dust.
Carcinogenicity	Carbon black is classified by IARC as group 2B (possible human carcinogen), but inhalation tests using a typical toner showed no association between toner and animal tumours.

3 Composition

Ingredients	CAS No.	Weight(%)
Polyester	Proprietary	>82
Carbon black	1333-86-4	<8
Polypropylene	9010-79-1	<4
Iron oxide	1317-61-9	<4
Silica	67762-90-7	<2

4 First aid measures

Inhalation	Move person to fresh air. 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. Seek medical advice

5 Fire fighting measures

Flammability classification	Slight
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.

6 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.

7 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.

8 Exposure controls and personal protection

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.

9 Physical and chemical properties

Appearance and odour	Fine powder. Slight odour
Solubility in water	Negligible
Solubility in organic solvents	Soluble in some solvents
Specific gravity (H2O = 1)	1.3

10 Stability and reactivity

Stability	Stable under normal storage conditions
Conditions to avoid	Heat, flames, sources of ignition. Keep dust away from ignition sources.
Hazardous decomposition products	Carbon dioxide, carbon monoxide, Nox
Hazardous polymerization	Will not polymerize
Incompatible materials	Strong oxidizers

11 Toxicological information

Oral toxicity	Believed to be low
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
Carcinogenicity	Carbon black is classified by IARC as group 2B (possible human carcinogen), but inhalation tests using a typical toner showed no association between toner and animal tumours.
Mutagenicity	Negative (AMES test)

12 Ecological information

Not tested for ecological effects

13 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.

14 Transport information

General	Not known to be specifically listed

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