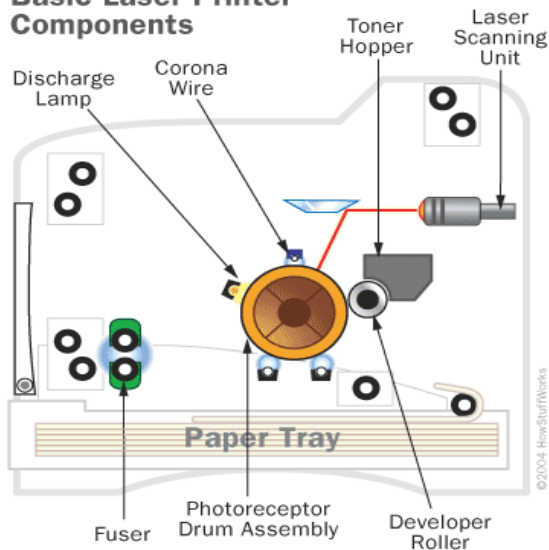


How does Toner work in Laser Printers

Sources: www.howstuffworks.com, Brad Johnson, Operations Manager, NuCycle Toner & Ink

Basic Laser Printer Components



Basic Toner Cartridge Components:



How does a Laser Printer work? - The laser printing process is based on some very basic scientific principles applied in an exceptionally innovative way.

The primary principle at work in a laser printer is static electricity, the same energy that makes clothes in the dryer stick together or a lightning bolt travel from a thundercloud to the ground. It's an electrical charge built up on an insulated object, such as a balloon or your body. Since oppositely charged atoms are attracted to each other, objects with opposite static electricity fields cling together.

Vocabulary:

Toner –An electrically-charged powder with two main ingredients: pigment and plastic.

Drum – Made out of highly photoconductive material. This is where the electronic image is placed before it gets to the paper. May or may not be built into the toner cartridge.

Primary Charge Roller (PCR) / Corona Wire – Provides the drum with the positive/negative charges

Fuser – A pair of heated rollers in the printer where the loose toner powder melts, fuses with the fibers in the paper. This is not part of the toner cartridge.

Basic Printing Process:

- 1) When you insert the paper into the printer and send out the printing order by the computer, the drum surface in the printer is charged positively while the drum rotates.
- 2) A laser beam sends a light onto the drum surface during the rotation, and then the area exposed to the laser beam forms an electrostatic image to be printed.
- 3) The toner particles (powder) are charged and then attracted to the electrostatic image on the drum.
- 4) While this is happening the paper is passing through the drum where it receives negative charges causing the toner to stick to it from the drum surface to the paper.
- 5) Once the image is transferred to the paper by the static electricity, it is fixed into it by heat and pressure given by the heat roller and the pressure roller within the fuser assembly. The Mylar covering on the fuser is what keeps the paper from burning up from the heat of the fuser.
- 6) The printed paper is then rolled out and may still be a little warm to the touch.
- 7) Toner that has been charged but not used as part of the print image is moved into the “waste/trash” bin of the cartridge.