

# PRIMARY RESEARCH

## LAR CARTRIDGE COLLECTION AND RECYCLING REPORT 2018

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contents

Document

Executive Summary .....2

    Glossary .....2

    Key Findings .....3

Newly Build Compatible Findings .....4

Remanufacturer findings .....4

    What happens to cartridges that remanufacturers collect but can't use or sell? .....4

    Unusable Remanufacturer cartridge collections .....5

InfoTrends' Opinion .....7

Tables

Table 1: What happens to cartridges that remanufacturers collect but can't use or sell? .....5

Table 2: Unusable Remanufacturer cartridge collections .....6



## Executive Summary

This report presents the results of a research program by InfoTrends to investigate cartridge collections, usage and disposal practices for reman and newly build compatible ink and toner cartridges. InfoTrends interviewed 23 remanufacturers in Mexico, Brazil, Panama and Colombia. The following is a glossary of terms used in this report.

### Glossary

- ◆ Broker: A company that buys and sells empty cartridges.
  - A captive brokers is owned by a remanufacturer. They are a profit center to the parent company and will supply primarily to the parent company as well as the aftermarket when excess empties are on hand.
  - Independent brokers are an independent business and serve the reman industry overall.
- ◆ Clone: (Also referred to as new built, newly manufactured, or compatible cartridge, NMC) A replacement cartridge that does not use an empty cartridge from an OEM, but rather uses a newly molded cartridge shell.
- ◆ Empty: A used cartridge that might be suitable for re-use or recycling.
- ◆ Extra - Wrong Vendor: Cartridges from vendors that the remanufacturers do not accept
- ◆ Final Disposition: What happens to a cartridge at the end of its life (sent to landfill, recycled, etc.)
- ◆ First Sale Doctrine/Patent Exhaustion: A U.S. legal doctrine that limits the extent to which patent holders can control a patented product after an authorized sale. Once an authorized sale of a patented product occurs, the patent holder's exclusive rights to control the use and sale of that product is exhausted and the purchaser is free to use or resell that product without further restraint from patent law.
- ◆ Landfill: Use of municipal waste. Municipal solid waste is commonly known as trash or garbage (US), refuse or rubbish (UK) is a type of waste consisting of everyday items that are discarded by the public. Depending on local laws, trash or rubbish may be buried untreated or may first be incinerated before the ashes are disposed of based on local laws.
- ◆ Non-Virgin Empty: An empty cartridge that has previously been remanufactured
- ◆ Bad Non-Virgin Empty: A non-virgin empty that cannot be successfully remanufactured or one for which there is no market.
- ◆ Good non-Virgin Empty: A non-virgin empty that can successfully be remanufactured.
- ◆ Recycling: Crushing or melting components for use in other products or industries.



- ◆ Reman: Remanufactured cartridge or remanufacturer, depending on context.
- ◆ Reman Recycling Ratio: Share of reman waste that is recycled rather than sent to a landfill or incinerator.
- ◆ Remanufacturing: The practice of cleaning, servicing, refilling, and re-using cartridges.
- ◆ Virgin Empty: An empty cartridge that has not been remanufactured.
- ◆ Bad Virgin Empty: A virgin empty that cannot be remanufactured or one for which there is no market.
- ◆ Good Virgin Empty: A virgin empty that can successfully be remanufactured.

### Key Findings

- ◆ LA reman industry continues to contract as they cannot compete with the flood of Chinese clones
  - Toner: Estimate that from 2015 to 2017 the LA toner reman industry has shrunk by 50% in terms of market share
  - Ink: Estimate that from 2015 to 2017 the LA ink reman industry has shrunk by 90-95%. Almost no one remans ink cartridges. Still some refill activity in local shops
- ◆ 95+% or more of remans are small operations and have morphed their business model such that they more resemble the refill business but still reman and don't simply refill.
  - Pick-up and delivery for customers
  - Walk-in customers
  - Contract with local customers
  - Reman the same cartridge multiple times and the customer gets his own cartridge back
  - Packaging product into new boxes is rare
- ◆ Less than 5% of remans operate under the traditional reman model of collections and resale
- ◆ Access to a materials recycling facility has drastically increased in LA.
  - Large remans make use of this facility
  - Small remans throw trash in the garbage



## Newly Build Compatible Findings

In speaking with the industry it is clear that almost all newly build compatible cartridges end up being thrown out by the users. Any collections of NBCs are unintended and accidental collections by the remanufacturing industry. Almost universally, remanufacturers will not remanufacture an NBC due to concerns about the quality and reliability of such a product. Unlike other areas of the world, the patent issues related to some NBCs are not an issue.

Remanufacturers attempt to minimize this unintended collection but when it does happen the waste materials are recycled, sent to waste to energy or landfilled through the same process that the remanufacturer has for all of its waste and so the ratios for landfill, W2E and recycle below mirror what remanufacturers do with all of their waste materials.

## Remanufacturer findings

### What happens to cartridges that remanufacturers collect but can't use or sell?

Remanufacturers need to collect empty cartridges to remanufacture them and not all collected cartridges are suitable for use. The table above provides our estimates on what the remanufacturing industry does with cartridges and components that they cannot use or sell.

- ◆ Significantly more recycling now than 2 years ago though still low by comparison to the U.S. or Europe
  - Environmental awakening
  - Local waste laws
- ◆ Small remans still throw waste in trash
- ◆ Only larger remans make use of emerging recycling infrastructure
- ◆ Some waste is donated to charity
  - Charity can sell for a small amount of money
  - Tax deductible charity contribution



Table 1: What happens to cartridges that remanufacturers collect but can't use or sell?

	2018
Laser	
Landfill	85%
Waste-to-Energy/ Incineration	5%
Recycled	10%
Total	
Inkjet	
Landfill	93%
Waste-to-Energy/ Incineration	3%
Recycled	4%
Total	100

### Unusable Remanufacturer cartridge collections

Remanufacturers need to collect more cartridges than they can actually use because some collections are damaged or unusable because they were previously remanufactured by a different remanufacturer, an NBC that remanufacturers will not purposely collect, or of a type of cartridge that simply is not remanufactured.

Virgin empties have a lower defect rate than non-virgins but remanufacturers primarily remanufacture virgin cartridges as opposed to non-virgins so virgin represent a higher share of total bad collections than non-virgins.

Remanufacturers also accidentally collect cartridges that are simply not usable because they may be NBCs, simple toner cassettes and even toner bottles that they typically do not remanufacture.

On the inkjet side a significant volume of collections are bad-wrong vendor because many are ink tanks from vendors where the cartridges are not remanufactured. However those number had been higher as there is more remanufacturing on ink tanks now than in the past.

- ◆ Laser remans now focused on the service business model used by refillers which means that the very large majority of their bad empties are from non-virgins but the drop-out rate is very difficult to determine



- ◆ Nearly all remans are out of the ink reman business so most have no collections to speak of some remans of toner do some refill of ink in the refill service business model

The table below shows the percentage of all collections that are bad /unusable for the three types described above.

**Table 2: Unusable Remanufacturer cartridge collections**

	2018
Laser	
Bad Virgins	1.5%
Bad Non-Virgins	20.6%
Subtotal	12%
Bad-Wrong Vendor	18%
Total	40
Inkjet	
Bad Virgins	10%
Bad Non-Virgins	1%
Subtotal	11%
Bad-Wrong Vendor	4%
Total	15%



# opinion

## InfoTrends' Opinion

Remanufacturers offer alternative cartridges to end users at a price generally 30% below the OEM price. They also offer an environmental message that remanufacturing is good for the environment because it represents reuse of an existing product. However the environmental message is not complete without looking at what happens to remanufactured cartridges when they reach end of life. At this time the LAR remanufacturing industry has not been keeping pace with remanufacturing in the US or W. Europe in terms of diverting their own waste away from landfill. Nearly 100% of remanufactured cartridges end up in landfill at end of life.

On NBCs nearly all of these cartridges are made in China neither is there an attempt on the part of those suppliers to recollect empties at end of life.



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[Comments or Questions?](#)

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