

Marin Sanitary Service Facility Tour – Fun Fact Sheet

Facts about the MSS Facility

- MSS has a dual stream recycling program – this means that the cardboard and paper are kept separate from the containers (bottles, glass, metals, etc.)
 - This help keep paper clean and dry, which means it is higher quality and easier to sell for recycling.
 - It also prevents cross-contamination from other recyclables, like glass – preventing glass from getting smashed into the paper is very important
- Paper and cardboard first travel through a star screen: cardboard rolls over the top of the star screen, while paper can fall through
 - Paper and cardboard both then go through a “negative sort”, meaning that all contaminants are removed
 - Newsprint paper is pulled off the line and dropped into a different part of the facility to be bailed separately from office paper
 - We end up with three paper streams: cardboard, mixed paper, and newsprint
- Container recycling first goes through pre-sort to remove cross-contaminated paper and heavy items
 - After that, a magnet pulls off ferrous metals like steel
 - Next is a glass screen for pieces 1” or smaller, which is cleaned up with a glass vacuum
 - Then a machine performs a density sort, meaning that other glass falls out because it is very heavy compared to other materials
 - Then the materials (plastics and aluminum) are sent up to the sorting line, where they go through a “positive sort”, meaning that sorters take what they **do** want off the line
 - One person looks for plastic bottles made of #1 PET, and others look for clear jugs and colored jugs made of #2 HDPE
 - Finally, an eddy current induces a magnetic field in aluminum, which then flies off of the end of one of the lines because of the repulsion induced by the current
 - The last thing in the process is a final check for missed recyclables

Facts about recycling

Paper

- Paper can be recycled generally between 5-7 timesⁱ
 - Each time it is recycled the fibers get shorter and less strong, so after several times being recycled paper should go in compost or recyclers will need to mix it with virgin paper fibers
- 76% of paper mills were using some recycled paper in 2011 – recycling your paper actually does save trees from being used for new paperⁱ

Glass

- Glass can be recycled infinitely, which means it actually gets to come back as more glass food and beverage containersⁱⁱ
 - When put in the recycling bin, glass can be back on store shelves in as little as 30 days
 - Glass is frequently recycled locally (it’s heavy, so costly to move very far)
- Durable glass like wine glasses or regular drinking glasses at your home are made differently, so they cannot be recycled because they melt at a different temperature than disposable food and beverage glass – they belong in trash

Aluminum

- Aluminum is endlessly recyclable – when we recycle aluminum cans, they can be back on the shelf as another can in 6-8 weeksⁱⁱ
- The typical aluminum can today contains about 68% recycled aluminumⁱⁱ

- Recycling aluminum only takes 5% of the energy of extracting and manufacturing new aluminumⁱⁱⁱ
- Close to 75% of the aluminum ever produced is still in use todayⁱⁱⁱ

Plastics

- Plastics: MSS is processing #1 PET bottles and #2 HDPE jugs and is able to sell them currently. Other plastics have faltering markets, and no one wants to buy them
 - If PET bottles are kept perfectly clean (free of dust, glue, food residue, etc.) then it is possible to include recycled PET in new plastic bottlesⁱⁱ
- However, it is more difficult and expensive to recycle PET into new bottles because of the low price of virgin plastic, and because it needs to make food safety standards set by the FDA, so it needs to be very clean^{iv}
 - For example, only 7% of the bottles produced by Coca-Cola contain any recycled plastic content^v
 - More frequently, PET is “downcycled” into synthetic fibers or textiles that go in our clothes and carpets
 - These downcycled items are generally not recyclable
- Plastics are causing a global crisis after the implementation of China’s National Sword policy
 - The policy bans imports of recyclable materials such as mixed plastics and mixed paper; it also sets very strict contamination standards. Bales must contain less than 0.5% contamination – nearly perfect – to be accepted in China^{vi}
 - As of 2019, MSS is sending most of its paper and plastic bales to China
 - Because of this, US recyclers have had to look for other markets – such as Malaysia, Vietnam, Indonesia, and Turkey – and in 2018 sent the equivalent of 68,000 shipping containers of plastic recycling to countries that don’t properly recycle 70% of their own domestic plastic waste^{vii}
 - This means that these countries have been overrun by plastic pollution and dangerous byproducts of plastic processing. For more information on this crisis, search for The Guardian’s article “Where does your plastic go? Global investigation reveals America’s dirty secret”.
- Because plastics are made from fossil fuels, they also contribute to climate change from the start of their manufacturing process – in 2015, 24 ethylene plants in the US emitted the equivalent CO₂ as 3.8 million passenger vehicles^{viii}
 - In 2019, plastic production and incineration added the same amount of CO₂ to the atmosphere at 189 coal-power plants^{viii}

ⁱ Sukalich, Kathryn. “Everything You Need to Know About Paper Recycling”. *Earth911*. July 1, 2016. <https://earth911.com/business-policy/business/paper-recycling-details-basics/>

ⁱⁱ Bauers, Sandy. “Which is greener: Glass bottles, plastic bottles, or aluminum cans?” *The Philadelphia Inquirer*. July 23, 2012.

https://www.inquirer.com/philly/health/environment/20120723_Which_is_greener_Glass_bottles_plastic_bottles_or_aluminum_cans_.html

ⁱⁱⁱ Pappas, Stephanie. “Facts About Aluminum.” *LiveScience*. September 28, 2014. <https://www.livescience.com/28865-aluminum.html>

^{iv} Winter, Debra. “The Violent Afterlife of a Recycled Plastic Bottle”. *The Atlantic*. December 4, 2015.

<https://www.theatlantic.com/technology/archive/2015/12/what-actually-happens-to-a-recycled-plastic-bottle/418326/>

^v Wong, Vanessa. “Almost no plastic bottles get recycled into new bottles”. *CNBC*. April 24, 2017. <https://www.cnbc.com/2017/04/24/almost-no-plastic-bottles-get-recycled-into-new-bottles.html>

^{vi} “International Policies Affecting Global Commodity Markets”. *CalRecycle*.

<https://www.calrecycle.ca.gov/markets/nationalsword/globalpolicies>

^{vii} McCormick, E. et al. “Where does your plastic go? Global investigation reveals America’s dirty secret”. *The Guardian*. June 17, 2019.

<https://www.theguardian.com/us-news/2019/jun/17/recycled-plastic-america-global-crisis>

^{viii} Muffett, Carroll. “The Earth’s climate is paying for our addiction to plastic” *The Guardian*. June 25, 2019. <https://www.theguardian.com/us-news/commentisfree/2019/jun/24/the-earths-climate-is-paying-for-our-addiction-to-plastic>