

February 11, 2015

Volume 3, Issue 3



Recycling Tidbits

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Glass Bottles & Jars

Glass has been around for thousands of years. In pre-historic times, cave-men used obsidian (volcanic glass) to make knives and arrows. Archeologists have found evidence that the Egyptians and Romans started using glass beads around 4000 BC, but it wasn't until 1500 BC that hollow glass vessels were used.



Picture courtesy of <http://inhabitat.com>.

Making Glass Bottles

Glass bottles and jars, otherwise known as container glass, are generally made from silica (beach sand), limestone, and soda ash. These materials are mined from the earth, mixed together and melted in temperatures as high as 3,000 degrees Fahrenheit. Once glass has turned into a molten mixture it is cured,

formed into molten gobs (they really are called gobs) and dropped into forming machines where bottles are immediately manufactured. These newly formed bottles are then cooled using water and fans before being sold to a bottler to be filled.

Advantages of using recycled glass instead of virgin materials: 1. No mining is involved; and 2. Recycled glass generally melts 300 degrees cooler than its virgin counterparts. This means energy is saved and greenhouse gas emissions are reduced. So much energy is saved in this recycling process that just 1 recycled bottle saves enough energy to power your computer for 25 minutes or your non-energy efficient TV for 20 minutes.



Picture courtesy of California Glass.



Dunn County Residents Recycled...

Over the past six years there has been a slight downward trend in recycling glass in Dunn County. This is due to more and more companies making the switch to aluminum cans or plastic jars which are cheaper and lighter to transport. With less access to container glass we generally recycle less. Impressively enough, Dunn County residents increased glass recycling in 2014 by recycling 516.47 tons compared to 485.54 tons in 2013.

Did you know?

The steel lids from glass bottles and jars are recyclable? Throw them in with steel cans.

Stump the Grump

How many bottles did Tom Kelly use to build this house in 1905?



Answer on page 3.

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The Recycling Process

Recycling 1,000 tons of glass creates slightly over 8 jobs (Source: 2011 Container Recycling Institute).

Let's walk through the glass recycling process.

Before container glass can be recycled into new products it must be sorted and eventually crushed into cullet. Container glass from Dunn County is sold and shipped to Strategic Materials in St. Paul, MN for processing. When glass first arrives at Strategic Materials it's dumped into a funnel where the glass is fed onto a conveyor belt.

The sorting process then begins with powerful magnets that attracts ferrous metals such as steel lids that may be mixed in. Next, the glass goes through an eddy current which

repels non-ferrous metals such as aluminum. After this, the glass is run through an array of optical sorters that identify the glass by color.

These sorters emit a precise blast of air that drops the chosen color of glass onto a new conveyor belt or storage container below. The newly sorted glass is then crushed into cullet and sold.



Crushed glass, also known as cullet. This cullet may be turned into fiberglass, green bottles, or used for specialty items such as countertops.

Photo courtesy of Strategic Materials.

Energy costs drop about 2-3% for every 10% recycled cullet used in the manufacturing process (Source: Glass Packaging Institute).

Strategic Materials sells the cullet to bottle manufacturers and other specialty markets. Clear glass stays local and is melted down and remade into containers at furnaces in Minnesota and Wisconsin. Amber colored glass, however, is made into containers at furnaces throughout the Midwest, including a plant in Wisconsin. Green glass is shipped to Indiana, Texas, Kansas and Alabama and used for fiberglass insulation and other specialty markets.

On average, a typical glass processing facility can handle 20 tons of color-sorted glass per hour (Source: Glass Packaging Institute).

Houston, We Have a Contaminant.

Unfortunately non-container glass (such as windows, drinking glasses, ovenware, ceramics, etc.) is made of different materials than container glass and is not compatible in this recycling stream. For this reason, Dunn County does not accept non-container glass for recycling.

If too much non-container glass is mixed in with the cullet the resulting bottles will have imperfections. Imperfections can range from a few tiny bubbles to cloudy glass to large chunks of contaminants. This happens because non-container glass doesn't melt at the same temperature. If there are too many contaminants the entire bottling process may be scrapped, reducing the efficiency of recycling.

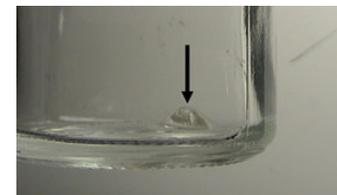
The following pictures show what contaminants may do to container glass. Photos are courtesy of Aluglas.



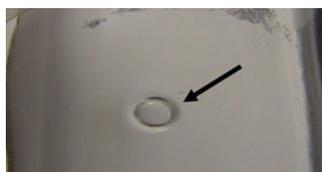
Bottles may not dry fast enough causing bent necks.



Brush marks may form.



Spikes in the glass may appear.



Bubbles of various sizes may form.



Pieces of non-container glass might get stuck inside.

Classy Glass



Left to Right:

Reuse bottles to create a vase or centerpiece. <http://www.shanty-2-chic.com/2014/04/bottle-vase-centerpiece.html>

Any food or mason jar works great for this heart stopping DIY piece. <http://blog.lights.com/diy-valentines-day-heart-jars/?pp=0>

I just *love* this constellation jar, great for a kids room or classroom! <http://www.handimania.com/diy/constellation-jar.html>

Treasure jars hide tiny wishes in any garden. <http://www.hometalk.com/1344487/how-to-make-garden-treasure-jars>

Stump the Grump

Tom Kelly was a saloon owner with a dream, to build a house out of bottles. It seems rather silly, but in 1905 Tom lived in a booming mining town in Rhyolite, Nevada that housed 53 saloons. At this time lumber was scarce but bottles were abundant. Reportedly he used some 30,000 - 50,000 beer, whiskey, soda and medicine bottles to build the structure which still stands today.

Kelly was 76 years old when he built the three room house which took almost six months to complete, finishing in February of 1906. He never lived in the house, but instead raffled

it off. Tickets were \$5.00 each (approx. \$120 today). Eva and Jack Bennet were the lucky winners. Kelly's house was the third and largest bottle house in Rhyolite.

In 2005, the Bureau of Land Management, the Rhyolite Preservation Society and the Rhyolite Caretakers banded together to restore Kelly's bottle house. The Central Nevada Museum and the Beatty Museum and Historical Society volunteered age-appropriate bottles for the project. It took 21 days to complete its restoration.

www.rhyolitesite.com



Above: The Bennet family in 1909.

Below: The restored house in 2005.

