

## From The Office Of Environmental Services

by Andrew Anderson Environmental Technician

Ahō, nīhkānetike!

I would like to take a little time to talk to you about plastic. I know it is not common knowledge the process plastic goes through, and so I will do my best to give a brief summary of some very interesting facts of plastic that I've learned.

In this article I hope to give you a different perspective on plastic. We depend on plastic too much in our daily lives to think the answer is to eliminate it, but perhaps we will think more about how we handle it from now on.

One of the things we think of when we hear the word plastic is a plastic water bottle. It is the most common item that we use on a daily basis that actually has the word 'plastic' in the name. You don't hear people say "I just bought a plastic TV", or "Check out my new plastic laptop". So, for this article, I will start with the plastic water bottle.

The life cycle of a plastic bottle starts with the creation of the plastic used to make it. Most plastic bottles are made from petroleum (crude oil), which also has many other uses. In the case of a plastic bottle, oil is extracted from locations all over the world before being shipped to facilities here and then distilled to separate the various hydrocarbons it contains. Before the process of the plastic bottle can even start, there are a number of environmental impacts that can occur. I'm sure we all remember the spill, not too long ago, that gushed oil from the sea-floor for three months. Some of you may also remember the supertanker that ruptured on the coast of Alaska spilling 11 million gallons of oil back in 1989. Also, regions like the Middle East are famous for their heavily polluting oil fires caused by intentional or accidental combustion of oil fields.

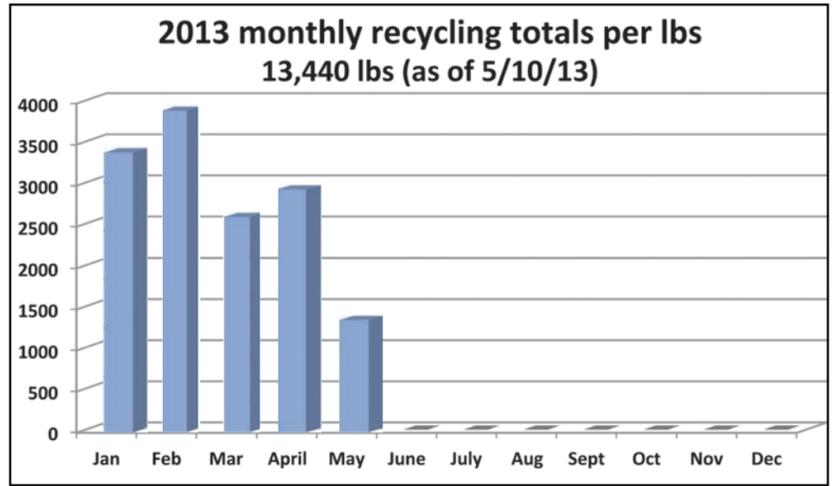
The hydrocarbons extracted from crude oil are mixed with chemical catalysts, triggering polymerization. At this stage in the process the manufacturer determines which type of plastic will be made. As you know, there are many types of plastics all around us in televisions, automobiles, mobile phones, medical supplies, furniture, jewelry, school supplies, and the list goes on and on. That also means that it is a huge contributor to all sorts of pollution. A fact that we all should know is that it takes centuries, some reports even say a millennia, for plastic to biodegrade. In our minds, when someone tells us that plastic takes hundreds of years to breakdown, we picture one single bottle in a landfill somewhere, but did you know that 1500 bottles end up in landfills and the ocean every second? 86% of plastic bottles do not get recycled. If we aren't recycling or reusing a bottle that it takes very little to no energy to put in a recycling bin or

set aside for reuse, what about the other plastics such as computers, TV's, toys, PVC pipes, tooth brushes, eye glasses, pens...etc.? Where do these items go, because they won't go away in our lifetime?

After we drink the water out of a plastic bottle we throw it away. Then it becomes 'Out of sight; Out of mind.' We don't spend much time thinking about what happens to that bottle after we are through with it, if we think about it at all. Has it ever crossed your mind that you might be ingesting the chemicals that are used to help make the plastic water bottle? Some plastic products contain a variety of additives, some of which can be toxic. For example, plasticizers like adipates and phthalates are often added to brittle plastics like polyvinyl chloride to make them pliable enough for use in food packaging, toys, and many other items. Traces of these compounds can leach out of the product. With industries trying to come up with ways for the plastic to breakdown quicker and not last for hundreds of years, some plastics will leach out chemicals when in heated environments. Could this happen during shipping? There's really no way for us, the consumer, to tell.

If the chemicals in plastic aren't leaching out from the product while they are in our possession, then what about when they are in landfills, open site dumps, creeks and rivers? Chemicals are leaching out into the soil and into our water aquifers and water wells. They are absorbed by our plants and vegetables that we eat. The fish and animals that we eat may have the chemicals in them. Not only is this problem land based, but I would encourage you to look up 'The Great Pacific Ocean Garbage Patch' when you get a chance. In the Pacific Ocean there is a huge circular current that is caused largely by the shores of Asia and North America in the northern hemisphere. Close to the middle of this area are the islands of Hawaii. One of the northern most islands of that chain is called Sand Island. On Sand Island alone, tens of thousands of pounds of plastic wash ashore every year. In one documentary called 'Plastic Paradise' you'll see the reporter walking along a section of the beach where she finds computer monitors and television sets among a large pile of plastics. In the same documentary they show birds and fish that have washed ashore with lighters, bottle caps and even fishing nets in their stomachs. If you happen to come across one of these photos you may feel a little saddened for these animals, but the bigger truth is that we are doing this to ourselves.

I'm not saying we should try and do away with using water bottles and all



things plastic, because that would be near impossible. I'm saying, instead of throwing them away, reuse them or give them to someone who can recycle them properly. We desperately need to gain a new perspective on plastic. It is only one piece of a puzzle that makes up pollution, but it is a large piece. So, when we think that the last time we'll see a piece of plastic is when it goes in the trash, we have to think again. Save it. Somehow we can 'Reduce, Reuse, or Recycle' it.

Now, if you would allow me to change course here a little bit, I feel this is the perfect time for me to address something. I have been asked a number of times about the different types of plastic and which ones can or cannot be recycled. You may have heard me say that OES only takes plastics labeled #1 or #2. The reason for that is the Greenstar Recycling facility that we take all of our recycling to has set those particular plastics as their limit. However, they have told me that they will take plastic bags, the type you get from grocery stores, and those are labeled #4. So, I haven't been too strict on what we will collect and what we will not collect.

I'm sure most of you are aware of the little recycling arrows on the bottom of plastic containers that have a number in the middle of them. The number in the middle is the main focus of that label. This number, combined with the arrows, is what is called a 'recycling code'. It indicates what type of plastic the container is. The arrows do not determine whether or not the container can be recycled or has been recycled. For example, you will have a tough time finding a facility that will take Styrofoam (#6), and a lot of people will say that it cannot be recycled, yet it has the recycling arrows around the number. It is understandable that most people will think that it means that it should be recycled. Although most plastic can be recycled, when the numbers in the recycling code gets higher, the higher amount of energy it takes. Most recycling centers just don't have the means to process them.

Here is a list of the 'recycling codes'. Next to the codes are the names of the different types of plastic and some examples of the products made from that plastic.

**Polyethylene terephthalate.**

Examples: Soda and water bottles, medicine containers.

**High-density Polyethylene.**

Examples: bottles for milk, liquid laundry soap, dish detergent, bleach,

shampoo, conditioner, and motor oil.

**Polyvinyl chloride.**

Examples: pipes, shower curtains, cooking oil bottles, baby bottle nipples, shrink wrap, coffee containers.

**Low-density Polyethylene.**

Examples: wrapping film, grocery bags, sandwich bags.

**Polypropylene.**

Examples: food storage containers, syrup bottles, yogurt tubs, outdoor carpet.

**Polystyrene.**

Examples: coffee cups, disposable flatware, bakery containers, meat trays, packing peanuts, Styrofoam insulation.

Any combination of 1-6 above or another less commonly used plastic.

At the moment, OES is not able to collect every number on the 'Recycling Code' list. We will keep you informed as to when we are able to collect those items. For example, a couple of years ago we held an E-waste event in Stroud, open to the whole community, where we were accepting all electronics. Everything that could be plugged in or ran on batteries, we were trying to encourage people to let us take them off of their hands, free of charge, so they wouldn't end up in landfills, fields, creeks or rivers. If we have anymore events like that, or hear of one near the Sac and Fox Nation, we will let you know. Disposing of computer monitors and old TV sets isn't free. You have to pay to have them properly disposed of. But, I would encourage you to please help us divert them from ending up in the ground or in our water.

I would like to let everyone know that we are accepting batteries. So if you have car batteries or Duracell batteries from your electronics, please bring them by, or let me know and I will make arrangements to pick them up.

If you have any questions for us here in the Office of Environmental Services (OES), please feel free to give us a call at # 918-968-0046, or email us at oes@sacandfoxnation-nsn.gov. We have recycling bins in all the buildings here at the Nation (including Shawnee). We also have a recycling trailer outside of our building located just west of the Juvenile Center which collects Paper, Plastic, Cardboard, and Aluminum. We appreciate all of your help with our recycling efforts. Thank you.

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*This is the day that the Lord hath made we will rejoice and be glad in it.*