



# Bio Straws

Biodegradable Eco-Friendly Packaging



## PROBLEM!

This problem is not the straw or product but the polymer it is manufactured from. Many countries have banned this due to the lack of ability for them to produce the products that are biodegradable due to costs and availability of biodegradable compounds and lack of compostable landfills.

Mali and Mauritania became the next countries of Africa to ban non biodegradable plastic bags.

Tanzania, Uganda, South Africa and Kenya have already banned thin plastic bags, while Rwanda and Somalia have banned them completely. Africa is high on the list for bans as biodegradable compounds are not available and expensive to local markets.

Kenya is the latest country to ban polythene plastic bags. Similar measures are reported to be in effect in at least nine other African countries. However, of the nine, only Rwanda has been successful in enforcing the ban. In neighbouring Uganda, for example, the move away from plastic has been slow.

Countries like China have begun to restrict the use of plastic bags within their country Italy became the first European country to ban non-biodegradable bags.

France is soon to follow suit, with many cities across the globe.

Pakistan to the United States begin to ban non-biodegradable plastic bags.

Mexico is also in lead to manufacture straws and cutlery which is biodegradable.

Paper straws is not the solution as replacing one for the other. Producing paper straws uses 10 time more material than a plastic straw when compare to earth's resources.



**Eco Friendly**

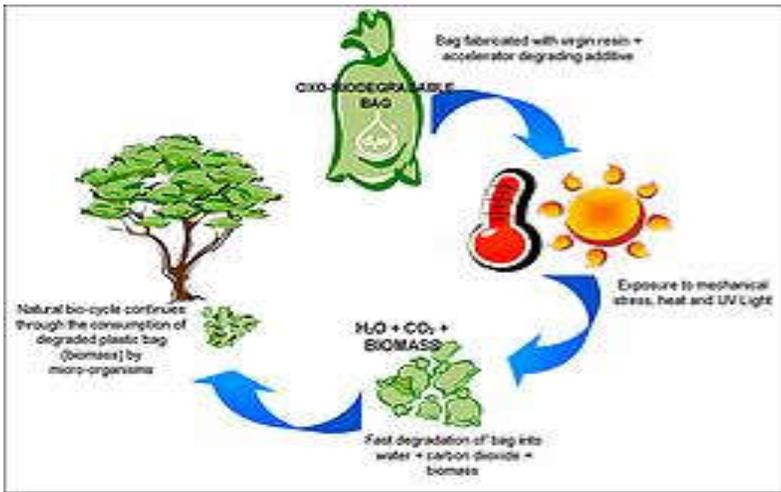
**no straws  
attached!**

**16**  
countries make it  
mandatory to use  
**biodegradable plastic**  
technology  
**BY LAW**

**8**  
countries make it  
mandatory to use  
**oxo** technology







**Negatives:**

Bio Resins : New reports show that BioResin technology creates N2O which is 310 times more potent than Co2. Due to these problems the ozone depletion of BioResins is at the top of the list above synthetic based polymers. This creates a problem for the environmental claims behind BioResins as their base market is replacing PS, PP and PE.

Oxo-degradable plastics which are broken down into small pieces under sunlight or UV Light.

**Bio Straws** also does not require UV light and will breakdown further and more rapidly.



**Bio Straws** has been tested for biodegradation and indicates in test results of 15-25% biodegradability months and not hundreds of years in a compost environment. Making the product biodegradable before it even makes its way into the ocean. Through research and development Bio Straws has created some of the highest quality biodegradable while maintaining quality.

**Bio Straws** allows microorganisms to hydrolyze the polymer chain allowing for a natural biodegradation process. The standard synthetic resins would take hundreds of years for microorganisms to be able to consume them due to the polymer chain length (Molecular Weight), **Bio Straws** interacts with the enzymes which are produced by microorganisms for the reduction of the chain length. Once the chain length has been reduced the compound's carbon can be consumed by hungry microorganisms looking for food to eat.

**Bio Straws** rapidly enhances the ability for this compound to biodegrade in anaerobic and aerobic environments. When placed into active microbial environments begin to decompose at very slow rates by microorganisms which enhances the ability for the product to be decomposed by microorganisms.

**Bio Straws** achieved results of biodegradability in landfills, anaerobic digestion systems and aerobic facilities.



**Bio Straws** has been tested by 3rd party labs which conduct the ASTM D5511 testing for biodegradation and it does not interfere with the physical properties of the plastic product, it maintains all physical characteristics of the synthetic plastic article and the shelf stability is unchanged.

Over the past 20 years, more and more emphasis has been placed on living "green" and being environmentally conscious in the creation of industrial products and solutions. Throughout this time, there have been many different attempts aimed at creating the most environmentally friendly plastic products. This has brought about not only the introduction of biodegradable compounds but also the perfection of its creation.

Many early plastic products that were touted as "biodegradable plastic" were simply a play on words for the public until the Federal Trade Commission cracked down on their claims and created a standard that now must be attained in order to be considered biodegradable plastic. In essence, the qualifications in order to be considered biodegradable are that the material must be scientifically proven to break down completely and return to nature in a short time frame unless the product can be qualified by stating the period of time for customary disposal and the percentage of biodegradability in the specified disposal method (IE. Landfill, Digestion System, Compost, Aerobic Facility or Home Compost) . The creation of such materials can be costly and complicated, but Biosphere is solving those issues.

Tests of products based on the EPA 8015, shows that the products are completely returning to nature and only elements in nature are left behind. This shows the compound is truly enhanced for biodegradation.

**BIODEGRADABLE**

