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BIODEGRADATION

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Introduction

BIODEGRADATION

- Process by which organic substances are broken down by the environmental effects and by the living organisms.
- Organic material can be degraded aerobically or anaerobically.



Biodegradable matter is generally organic material such as plant and animal matter and other substances originating from living organisms

What is The Meaning Of Biodegradation?

- **A biodegradable product can dissolve easily in the environment without destroying nature. It's the opposite of plastic and Styrofoam, which harm the environment.**
- **The meaning of biodegradation is breaking down of organic substances by the help of other living organisms such as bacteria and microbes.**



Organic substances can be broken down in two different ways;

- 1) aerobically, with the help of oxygen.**
- 2) an aerobically, without oxygen**

HISTORY

Etymology of "biodegradable"

- **The first known use of the word in biological text was in 1961 when employed to describe the breakdown of material into the base components of carbon, hydrogen, and oxygen by microorganisms.**
- **Now biodegradable is commonly associated with environmentally friendly products that are part of the earth's innate cycle and capable of decomposing back into natural elements.**

List of Biodegradable Products

- There are many new eco-friendly items which have been introduced into the market. All you need to do is to check the label and make sure that actually biodegradable.
- some items now made with natural and biodegradable products:
 1. Biodegradable detergent and soap
 2. Lemon batteries
 3. Plant pesticides
 4. Waste bags
 5. Etc..



SOME SUCH TIME SPANS ARE GIVEN BELOW

The time required for biodegradation of different materials is different. Here is the time that it takes for some products to dissolve:

- Banana peel – A week
- Cotton cloth – 1 to 5 months
- Paper - 2 to 5 months
- Wool - 1 to 5 years
- Nylon - 30 to 40 years
- Thin plastic – 10 to 20 years
- Thick plastic – 500 years



- **String.....3-14 months**
- **Orange peels.....6 months**
- **Tree leaves 1 year**
- **Plastic bags.....10-20 years**
- **Leather shoes.....25-40 years**
- **Tin cans.....50-100 years**
- **Aluminum cans80-100 years**
- **Glass bottles.....1 millions years**
- **Plastic bottles.....Forever**
- **Styrofoam cups500 years- forever**
- **Etc...**



TYPES OF BIODEGRADABLE PRODUCTS

- **Biodegradable materials are products that decompose naturally like:**
 1. **temperature**
 2. **sunlight**
 3. **or the processes of :**
 - a) **Bacteria**
 - b) **Fungi**
 - c) **Molds**
- **and other living organisms in a process known as composting. Food waste, grass cuttings and tree leaves**

TYPES OF BIODEGRADABLE PRODUCTS

1. **BIODEGRADABLE BAGS (Biodegradable bags and film)**
2. **RESINS (used to make biodegradable bags, food service items and many other products)**
3. **PACKAGING MATERIALS**
4. **ORGANIC WASTE (such as food, plants, grass clippings and tree leaves is material that breaks down naturally)**



Plastics


Biodegradable plastic

What is a “biodegradable plastic”?

Biodegradable plastic is able to break down (disintegrate) when discarded either in dumps or in sunlight.

How is it made?

It is made by using additives (such as Acolyte and cornstarch) which help the plastic to degrade.

- 
- **Biodegradable plastic is plastic that has been treated to be easily broken down by microorganisms and return to nature.**
 - **The biodegradable of plastics is dependent on the chemical structure of the material and on the constituent of the final product.**



PETE



HDPE



V



LDPE



PP



PS



OTHER

Factors that consider before marketing new plastic would be:

- 1. ability to recycle**
- 2. ability to photo degrade, biodegrade**
- 3. uses less gas and oil in manufacturing**
- 4. strength and versatility**
- 5. cost of manufacturing and marketing**
- 6. pollution involved in production?**

Paper or Plastic?



Paper - 2 - 5 months



Plastic bags - 10-20 years

Circle the Earth **FOUR** times



Enough plastic is thrown away each year to

Plastic bags are blamed for the annual death of more than **1 million** AND ^{birds} **100,000** marine animals



A single plastic bag can take up to **1000 years** to degrade in a landfill

Windblown plastic bags are so prevalent in Africa that a cottage industry has sprung up to harvest them



Over **1 TRILLION** plastic bags are used every year worldwide.



plastic = **10%** of generated waste

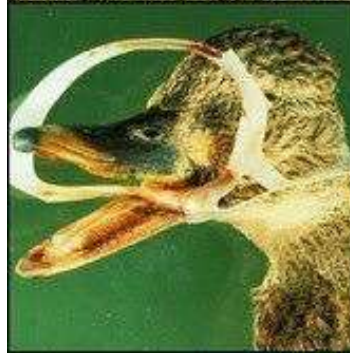


Every minute about **1 million** plastic bags are used

EVERY SQUARE MILE of the ocean has about **46,000** pieces of floating plastic

Each year less than 1% of plastic bags are **RECYCLED**





CHOOSE TO STOP POLLUTION

[-www.fb.com/noicantbelieveit](http://www.fb.com/noicantbelieveit)

Global warming

Biodegradable waste is an important thing due to its links with Global warming. When it goes in landfills, it breaks down under uncontrolled anaerobic conditions.



Conclusion

Biodegradation and now this is one of the best way that many country used to protect environment from harmful material, waste material

Many of this successful way we can use like:

- 1. Warning people to use less harmful material and use more useful material that good for nature**
- 2. There are some ways to use scientific material in a healthy way:**
 - REDUCE**
 - REUSE**
 - REPAIR**
 - RECYCLE**



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***THANK YOU FOR
LISTENING***