PLASTICS: EFFECTS ON ENVIRONMENT & WORK BEING DONE TO COMBAT EFFECTS

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Abstract

The use and development of plastics have contributed a significant amount to negative effects on the environment from the aspects of human health, habitat, and space-usage. This study investigates the problems, and then highlights solutions and possible solutions. A discussion of the marine effects, the human health effects, and the work to combat these are presented. A main focus in this study details improvements of the recycling process. Another key effort is the work with biodegradable plastics and the reuse of plastic in general. Work to move away from use of landfills is a huge problem. Also, perhaps the most effective combat of plastic's negative effects is in the decreased use and need for plastic.

Introduction

A heavy significance rests on the use of plastics in today's world. Although plastic has enabled advances in the quality of life through advantages in processing, ease of packaging, boom in industry, and overall convenience, it has proved to be harmful to human, animal, and plant health; plastic also harms habitat in the form of pollution, space-usage, contamination, and especially through its quality of persistence. Fortunately, society has recognized this problem and is in hot pursuit of ways to combat these negative environmental effects as they become a huge problem.

Effects on Environment from Plastic

The effect of plastic on the ocean presents an obvious habitat and animal life problem. As the plastic production increases, the population of many marine animals, such as sea birds, turtles, fish, whales, and seals go down significantly, due to the pollution of plastic into the ocean, mainly in the form of discarded nets and equipment

Some plastics are produced with the assistance of a substance call Bisphenol A (BPA), which is a synthetic chemical compound studied by the Environmental Health Net (2008). BPA can interfere with the regulation of both development and reproduction, through its interaction with estrogen. Some scientists conclude that the experimental results are inconsistent, therefore do not constitute further regulation of BPA. Other scientists are convinced that there is obvious toxicity of BPA in the experimented animals and this gives obvious reason to work towards lowering this substance's exposure to humans. (Environmental Health Net, 2008)

The disposal of plastic has presented large problems, therefore has catalyzed a recycling movement to try and reduce the overcrowding of landfills and pollution of plastics.
Recycling improvements are in progress, one of which is cryogenic grinding.

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Work Being Done To Combat Effects

The work that has and is being done in efforts to combat the decrease in marine population problem include –

Laws that regulate disposal, with tagging systems for boat's netting

Restriction on size of nets, punishment for plastic disposal into the oceans

Cleanup efforts, a major form being beach cleanups. (Connor,1988)

To combat plastic's persistence quality, (meaning that its breakdown is significantly slow, or nonexistent), the aspect of biodegradability brings hopeful possible solutions, specifically being worked on by A. Demirbas (2007). Biodegradable plastics' components come from renewable raw materials, such as starch, cellulose, and lactic acid, which with exposure to sunlight and air, will degrade, making it environmentally friendly (Demirbas, 2007). For biodegradation to work, plastic in a biodegradable polymer form has to be put in a bioactive environment. From there, algae, fungi, and bacteria perform the degrading process by enzymatic action, changing the chemical structure of the plastic. This is possible because the plastic is composed of naturally produced components, such as celluloses, collagen, starch, and others, which are blended with plastics' other components; the natural components in the plastic work with the natural environment. The main biodegradable plastics fall under biodegradable, compostable, hydro-biodegradable, bioerodable, photodegradable, oxo-degradable, and hydro-degradable. The process is carried out by chemical-, photo-, thermal-, and bio-degradation. Oxo-degradable is the leader in the efficiency of biodegradable plastics (Demirbas, 2007).