

Bethel College Mennonite Church Creation Care Committee
Creation Stewardship Notes # 8, July 2004
PLASTICS

Plastics have become a very important part of our everyday life. However they do have environmental and health problems which we need to consider. In some cases it may be better to use other materials. In other cases we may need to use plastic but should select the type of plastic that will minimize problems. In this way we not only reduce the problems but also encourage manufacturers to use the more benign plastics.

Problems with plastics include the following:

ENVIRONMENTAL

1. Pollution - The manufacture of plastics produces some of the most toxic byproducts, such as Styrene, benzene, trichloroethane, sulfur oxides, nitrous oxides, methanol, ethylene oxide, dioxins and volatile organic compounds. Some of these get into the environment, particularly as toxic emissions into the air. The manufacture of a 16 oz. PET bottle generates more than 100 times the toxic emissions to air and water than the manufacture of the same size bottle made of glass.
2. Depletion of non-renewable resources - Plastics are made from petroleum, a non-renewable exhaustible resource. See article in June 2004 National Geographic Magazine on "The End of Cheap Oil" which estimates that the peak in petroleum production will probably come in 6 to 30 years, and after that it is downhill.
3. Solid waste - Plastics are the fourth largest category of municipal solid waste that goes into landfills, and most take many years to break down. Some plastics are more easily recycled than others and therefore, if recycled, reduce solid waste and the use of resources.

HEALTH PROBLEMS (particularly of concern in using plastic containers for food)

1. Plasticizers - Plasticizers are added to some plastics to make them more flexible. Traces of these chemicals, known as adipates and phthalates, can leak out of the plastic when in contact with food.
2. Bisphenol-A - Many polycarbonate bottles, microwave ovenware, eating utensils and plastic coating for metal cans are made with bisphenol-A. This chemical can leak into food as the polycarbonate ages. Studies at present are inconclusive but bisphenol-A may be a hormone disrupter.
3. Dioxins - Dioxins, which are highly toxic in even low doses, are produced when some plastics are manufactured and/or incinerated. Exposure to dioxins can cause cancer, disrupt endocrine function, damage the immune system, and affect reproduction and childhood development.

Plastics are typically classified by one of seven recycling codes found in the triangle on the plastic product. These numbers (listed below) indicate the type of resin used in the plastic:

#1. Polyethylene terephthalate (PET or PETE) is relatively safe both to your health and to the environment. It is one of the most commonly recycled plastics and is locally recyclable. However there are no containers designed for reuse made from it and single-use bottles should not be reused.

#2. High density polyethylene (HDPE) is also safe as there are no known carcinogens or endocrine disrupters that leach from it. It is also commonly recycled and is locally recyclable. There are a number of reusable containers made from HDPE.

#3. Polyvinyl chloride (PVC), found in some clear food containers and in much cling wrap used for meat cheese and other foods. It **should be avoided**. As it is dangerous both to our health and the environment. Its manufacture and incineration releases dioxins; and vinyl chloride, the main building block, is a known human carcinogen and poses a threat to workers during its manufacture. In contact with foods, especially hot fatty foods, it can leach plasticizers. It is not commonly recycled so most of it ends up in landfills.

#4. Low density polyethylene (LDPE) is relatively safe but it is not commonly recycled and is not recyclable locally. Some bread and frozen food bags and squeezable bottles are made out of LDPE.

#5. Polypropylene (PP) is relatively safe but is not commonly recycled and is not recyclable locally. Some ketchup bottles and margarine and yogurt tubs are made of PP.

#6. Polystyrene (PS) **should best be avoided** in contact with food as it may leach styrene into food with which it comes in contact. It is found in foam containers and cups and sometimes in clear disposable takeout containers and clear plastic cutlery and cups. Styrofoam is recyclable locally.

#7. Other. This is usually polycarbonate that **should be avoided** as it can leach bisphenol-A into liquids and foods. It is usually found in baby bottles, 5-gallon water bottles and plastic lining in metal food cans. The National Environmental Trust recommends switching to baby bottles made of glass or polypropylene.

General recommendations:

Whenever possible, use the more environmentally friendly plastics, those that can be recycled (#s 1 and 2) and those that pose no known health risk (#s 1, 2, 4 and 5). Use polyethylene cling wrap rather than PVC cling wrap. Use polypropylene or glass baby bottles rather than polycarbonate baby bottles.

It is best not to heat foods in plastic. A "microwave-safe" or "microwavable" label simply means that the plastic will not melt, crack or fall apart in the microwave but does not guarantee that the plastic will not leach chemicals into the food. The US Department of Agriculture also warns against microwaving in single-use containers not intended for that purpose. According to the Food and Drug Administration (FDA), microwave-safe plastic wrap should be placed loosely over food so that the steam can escape and should not directly contact food.

Avoid plastic cutlery and dinnerware when cooking or heating foods.

Avoid storing fatty foods, such as meat and cheese, in plastic containers or plastic wrap.

Do not reuse single use plastic bottles for food or drink. Canadian studies have shown that these bottles build up bacteria in difficult to clean areas. Bottles made for reuse are designed to be more easily cleaned.

Biodegradable plastic, which is often starch-based, is relatively benign. It is decomposed by bacteria when buried in the soil in from 18 months to 3 years (compared to other plastic bags that may take up to 100 years).

Glass, ceramic and stoneware are the safest options when it comes to food packaging and storage because they will not leach questionable chemicals into the food. Stainless steel and aluminum are also environmentally friendly alternatives to plastic.

Information in this note was taken from The Green Guide. More information (including lists of better plastic products) can be found on the website: www.thegreenguide.com (go to Plastics for Kitchen Use)