

Phthalates and Different Types of Phthalates

Not all phthalates are created equal!

In the last article, we explained to you about the different types of hazardous chemicals present in different plastics and how they are harmful to human body. This post will deal exclusively with phthalates and its different types. I will cover the various uses of phthalates that, due to their unique chemical properties, make their use very common. However, the risks that *SOME* types of phthalates pose to human health are too dangerous to be ignored. Despite the multitude of studies done on phthalates, *some* of the evidence is still non-conclusive, nevertheless, it is essential to find healthier alternatives.

The term Phthalates refers to a type of phthalate called Ortho-phthalate. PET (**Polyethylene terephthalate**) is the plastic used for soda and most water bottles and is NOT an ortho-phthalate. PET is non-reactive in the human body but ortho-phthalates are very reactive. I will talk about both chemicals in this article.

Phthalates are a chemical compound called plasticizers which added to plastics (Poly vinyl Chloride for example) to make them soft, transparent, durable and flexible. Apart from plastics, phthalates can also be found in food packaging, cosmetics, cleaning materials and insecticides. Phthalates do not have a strong bond between plastics and themselves and that's why they are easily released from the plastics as the plastic ages, or heats and breaks down. Once in the environment, Phthalates can be absorbed by the skin, inhaled through breathing or ingested into blood stream.¹

The phthalates are degradable; therefore, they do not persist for long in the environment. However, once the human body is exposed to them, directly or indirectly, phthalates can cause several damaging effects. As with several other plastic chemicals (like BPA), phthalates can also act as endocrine disruptors once introduced into the human body. They act as external

¹ Phthalates. Breast Cancer Fund. <http://www.breastcancerfund.org/clear-science/radiation-chemicals-and-breast-cancer/phthalates.html>. Accessed 26 October 2013.

estrogen n human hormones and interrupt with their regular functioning by attaching to their receptors.

This disruption, especially during pregnancy, can be very harmful and can result in birth defects. Other harmful effects include metabolic interference, obesity, breast cancer and damage to liver and male reproductive organs. The phthalates are banned in most countries now and companies are looking for alternatives that do not cause harm to human body upon exposure.²

There are many different kinds of phthalates with different levels of toxicity. They are more popularly known as Ortho-phthalate.

These are the most common phthalates in use: *Dimethyl Phthalate, Diethyl phthalate, butyl benzyl phthalate, butyl decyl phthalate, dodecyl phthalate and diisododecyl phthalate.*

Not all phthalates are harmful and one such example is PET. PET, Polyethylene terephthalate, commonly used for soda bottles, uses phthalic acid for its creation but is not usually classified as a phthalate anymore. It is widely used in synthetic fibers, food and beverage containers and engineering resins. What makes it different from its fellow phthalates is that it is not harmful to human beings like others because it is non-reactive. It is light in weight and versatile, safe to use and can be recycled easily.

All these properties make PET an excellent choice for material to be used for food and beverage packaging. Research has shown that no or minimal amount of PET is leached from the packaging material into its contents and this small amount is not harmful to human beings.

Studies and experiments clearly claim the harmful effects of ortho-phthalates (or just simply phthalates) use in plastics. Therefore, most countries have passed laws for the ban of the use of phthalates due to their harmful effects. However PET is safe to use, but it has its limitations as we will discuss in the next article. Keep watching this space, as we will discuss the properties and its limitations of use in the next article.

² Phthalate. Wikipedia. <http://en.wikipedia.org/wiki/Phthalate>. Accessed 26 October 2013.