PET plastics

Question

There is a lot of interest in bottled water & polycarbonate refillable water bottles in relation to bisphenol-A (BPA), a leaching toxin found in polycarbonate bottles. I was wondering does the Waterman Mini fit into this category, or is it made from materials which will not leach into the water, or are there any plans to move to a different type of construction in the future which would make it exempt?

B response.

The PET bottle itself poses no danger when refilled. PET is an inert plastic and does not leach harmful materials into its contents -- either when a beverage is stored unopened, or when bottles are refilled or frozen. The PET container has been safely used for 20 years and has undergone rigorous testing under FDA guidelines to ensure its safety as a food and beverage container suitable for storage and reuse.

Opened bottles can harbour bacteria, however, as will mugs, glasses or any other beverage container. PET bottles are no more likely to foster bacteria than any other packaging or drink container. Ideally, all drinking containers -- including PET bottles -- should be washed with hot, soapy water and dried thoroughly prior to reuse. Yes. There are no dangers inherent in the freezing of PET bottles, and absolutely no truth to the internet-circulated rumours that dioxins are leached from frozen PET bottles into bottle contents.

Dioxin is a chlorine-containing chemical that has no role or presence in the chemistry of PET plastic. Furthermore, dioxins are part of a family of chemical compounds formed only by combustion at temperatures well above 700 degrees Fahrenheit -- not at room temperature or below.

PET packaging is selected by companies because it is safe, recyclable, convenient and suitable for food and beverage. The U.S. Food and Drug Administration (FDA) has reviewed migration testing data and concluded the PET containers do not leach harmful amounts of substances into their contents under foreseeable conditions of use. Yes. The idea that PET bottles "leach" chemicals when heated in hot cars is not based on any science, and is unsubstantiated by any credible evidence. This allegation has been perpetuated by emails until it has become an urban legend, but it just isn't so. No. There is no connection between PET plastic and Bis-phenol A.

Bis-phenol A is not used in the production of PET material, nor is it used as a chemical building block for any of the materials used in the manufacture of PET. Bis-phenol A is used to make polycarbonate, a different plastic from PET.

No. "Phthalates" (pronounced THA-lates) are a class of chemicals that include three subsets, each with different properties. PET or polyethylene terephthalate belongs to one of these phthalate subsets, but not the one most commonly associated with the term.

Orthophthalate is the phthalate subset most commonly referenced and discussed in popular literature and on internet sites; it has been the subject of some negative press. Often used to make various plastics more flexible, this type of phthalate is also called a plasticizer.

PET does not contain plasticizers or orthophthalates. Plasticizers are never substituted for terephthalates used in the manufacturer of PET, nor are the two ever mixed.

PET packaging is selected by companies for a wide variety of product applications because it is safe, strong, shatter-proof, and recyclable. Antimony is often used as a catalyst in the production of PET plastic. Catalysts speed chemical reactions and are commonly used in manufacturing to ensure that a process happens fast enough to make it commercially practical.

Antimony was chosen based on its performance against various selection criteria, including effectiveness as a catalyst; productivity; safety, few, if any, adverse effects; and an acceptable overall cost. Antimony, used in PET as the oxide of

antimony, has been used and researched for decades. Metallic antimony is not used.

In the science of toxic effects (toxicology), two key factors are used to determine a hazard: 1) How dangerous is the material?, and 2) How much of the material is released? A 1997 study showed that antimony oxide has very low toxicity. I The compound is relatively inert and does not participate in biological life. As for how much antimony oxide is released from PET, long-term studies indicate that it's very little. A report by the International Life Sciences Institute showed "less than five parts per billion" being released into liquid contents. This is compliant with the Environmental Protection Agency's National Primary Drinking Water Standard.

Multiplied together, antimony oxide's very low toxicity combined with very low occurrence means very, very low risk. Its use in PET does not endanger workers, consumers, or the environment.

- 1 APME technical dossier on The Toxicological Properties of Antimony Oxide, 1997, subject of a petition to the EU Scientific Committee on Food (SCF)
- 2 Report on Packaging Materials: 1. Polyethylene Terephthalate (PET) for Food Packaging Applications, International Life Sciences Institute, Washington, DC and Brussels, Belgium

Hope this make it nice & clear if anyone raises this subject in the future.

Cheers,

Scott Muir Managing Director

Waters Co Australia