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Effects of storage temperature and duration on release of antimony and bisphenol A from polyethylene terephthalate drinking water bottles of China.

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Abstract

We investigated effects of storage temperature and duration on release of antimony (Sb) and bisphenol A (BPA) from 16 brands of polyethylene terephthalate (PET) drinking water bottles in China. After 1-week storage, Sb release increased from 1.88-8.32 ng/L at 4 °C, to 2.10-18.4 ng/L at 25 °C and to 20.3-260.4 ng/L at 70 °C. The corresponding releases for BPA were less at 0.26-18.7, 0.62-22.6, and 2.89-38.9 ng/L. Both Sb and BPA release increased with storage duration up to 4-week, but their releasing rates decreased with storage time, indicating that Sb and BPA release from PET bottles may become stable under long term storage. Human health risk was evaluated based on the worst case, i.e., storage at 70 °C for 4-week. Chronic daily intake (CDI) caused by BPA release was below USEPA regulation, Sb release in one brand exceeded USEPA regulated CDI (400 ng/kg bw/d) with values of 409 and 1430 ng/kg bw/d for adult and children.

Citation

Effects of storage temperature and duration on release of antimony and bisphenol A from polyethylene terephthalate drinking water bottles of China.

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- Adult
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- Benzhydryl Compounds /analysis * /classification
- Child
- China
- Drinking Water /chemistry *
- Environmental Exposure /statistics & numerical data *
- Food Storage /methods *
- Humans
- Phenols /analysis * /classification
- Polyethylene Glycols /chemistry *

- Polyethylene Terephthalates
- Temperature *

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