2016 Children's Safe Products - Reporting Rule update
Draft Chemical Evaluation

CAS 620-92-8

Substance Name Bisphenol F **(BPF)** also 4,4'-di(hydroxydiphenyl)methane

Historical Summary

In 2011 Ecology found evidence of Bisphenol F (BPF) potential for exposure in indoor air [10]. BPF was not included in the reporting list because BPF was not listed on an authoritative source. Therefore there was no evidence of hazard.

Toxicity

EPA classified bisphenol F as high hazard for toxicity from repeated exposures based on reduced body weight and decreased total serum cholesterol, glucose, and albumin at 20 mg/kg-day in a 28-day oral rat study. BPF was classified by EPA as a moderate hazard for reproductive toxicity and a high developmental hazard based primarily on toxicity of its structural analog BPA [1].

In a systematic review of BPS, BPA, and BPF endocrine studies, BPF had estrogenic and anti-androgenic activity in *in vitro* testing [2]. On average, BPF was as potent as BPA in estrogenic activity assays and about half as potent as BPA in anti-estrogenic activity assays [2].

Exposure

In rodents, bisphenol F is readily absorbed following oral exposure, metabolized, and excreted primarily in the urine [1].

Washington State banned BPA for use in baby bottles, infant sippy cups and sports water bottles starting in 2010 (Washington State Law; Chapter 70.280 RCW). BPF is used as a replacement for BPA in epoxy resins used to line food cans and in polymer plastics [3]. BPF has been detected in personal care products such as lotions and cosmetics [4]. National U.S. production volume was reported to be 355,000 pounds in 2012 [5].

BPF was detected in 68% of indoor dust samples collected between 2006 and 2010 in NY State. Median detected concentration was 49 ng/g dust and the maximum detected was 240 ng/g. Of 8 bisphenol analogs measured, it was the third most common bisphenol detected after BPA and BPS [6].

BPF was detected in urine collected between 2000 and 2014 from U.S. adults. Depending on the collection time, BPF was detected in 42-88% samples and the mean detection was 0.15 – 0.54 ng/mL [7].

BPF was detected more frequently than other BPA analogs in a variety of foods collected from retail grocery stores in Albany, NY between 2008-2012 [3]. The maximum concentration detected (1130 ng BPF/g sample) was in a salad dressing packaged in a plastic container. BPF was most frequently detected in fats and oils, dairy products, fish and seafood, meat products, and vegetables and was mostly associated with foods packaged in cans. The authors estimated daily dietary exposure to BPF through U.S. food for different age groups; toddlers had the highest estimated intakes (mean 22.3 ng/kg bw-day, 95th percentile 70.2 ng/kg bw-day) [3].

BPF may be slower to degrade in the environment than BPA [8], but is not expected to have high persistence or high potential for bioaccumulation [1]. BPF has been reported to occur in surface water, sewage, and sediments [9].

References

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