

**From:** [Risotto, Steve](#)  
**To:** [Babich, Michael](#)  
**Subject:** Hazard Index calculations  
**Date:** Thursday, August 25, 2011 10:16:38 AM  
**Attachments:** [image001.png](#)  
[image003.png](#)

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Mike –

The CHAP members appear to have decided to use a Hazard Index (HI) approach to assessing the potential for health impacts from exposure to more than one of the phthalates restricted by the CPSIA. Although ACC's Phthalate Esters Panel does not necessarily endorse the use of such a screening tool for decision-making – particularly when combined with the results of a single spot urine sample - we have analyzed the approach to better understand the implications. We obviously haven't seen the details of the HI analysis that Chris Gennings and Holger Koch have conducted, but have tried to match their methodology as best we could.

Since Chris and Holger appear to be using the 2005-06 NHANES data set, we first compared those data with the data from 2007-08. As you can see below, there seems to be quite a difference. The 95<sup>th</sup> percentile is about 20 percent lower for both women and children in the 2007-08 data set – for the 6 CPSIA phthalates + diisobutyl phthalate (DiBP). Since the differences are based on the metabolite measurements, it doesn't matter what reference doses are used. (For the record - I used the conservative values from Kortenkamp and Faust (2010) for the graphs below.) The maximum HI values also are quite a bit lower in the 2007-08 data set, particularly for women. For 2005-06, 15 women (4.5%) had an HI above 2, with a maximum value of 29; for 2007-08, only 3 women (~1%) had an HI above 2, with a maximum of 3.2.

The differences could suggest that phthalate exposures are declining over time, or may simply reflect the variability in the metabolite data. Either way, it will be important for the CHAP to address the differences in its discussion of the approach. We also believe it is vitally important that the CHAP acknowledge that – even using this very conservative HI + spot urine analysis approach - greater than 95 percent of the populations of interest are below an HI of 1.

Please let me know if you have any questions about the analysis.

*Steve*

Steve Risotto

[steve\\_risotto@americanchemistry.com](mailto:steve_risotto@americanchemistry.com)

(202) 249-6727 (o)

(571) 255-0381 (m)

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**Figure 1 – Women of Child-Bearing Age (20-39), Hazard Index for 7 Phthalates (by percentile)**

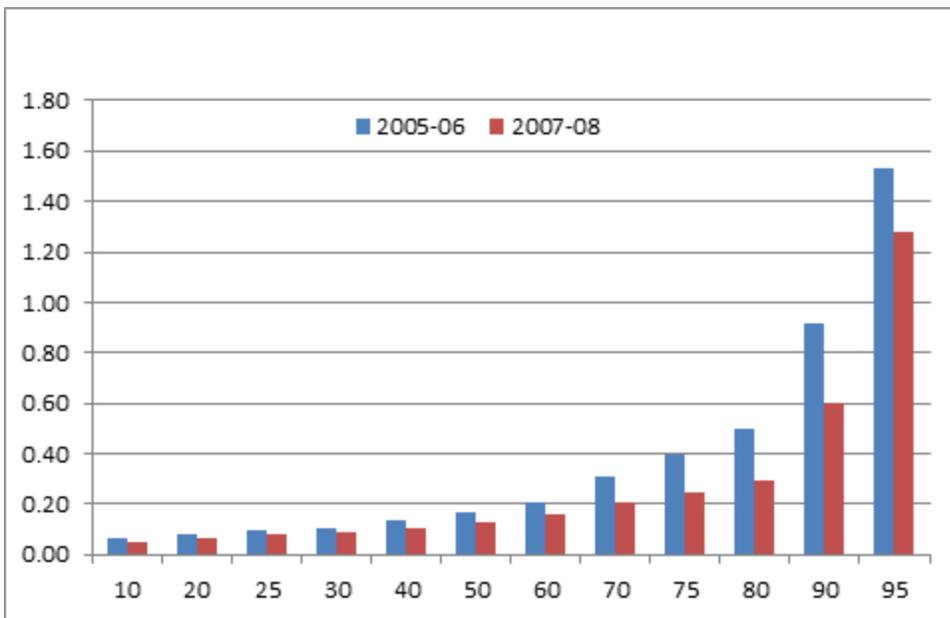
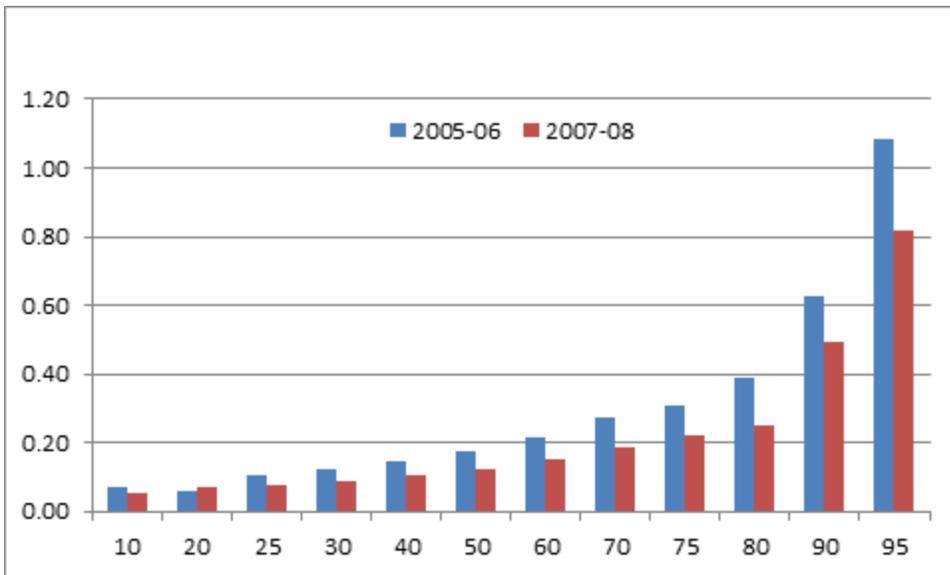


Figure 2 - Children 6-11, Hazard Index for 7 Phthalates (by percentile)



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