

# NEWSLETTER

## Coming Alongside

*Committed to Bringing Invisible Biochemical Worlds  
Alongside the Everyday Citizen*



### *Greetings!*

In this newsletter, we bring you:

- The Gulf of Mexico Oil Spill: Where to Go for More Information (1)
- Coming Alongside News (1)
- Going beyond the Toxic Substances Control Act: Landmark Legislation (2)
- Arsenic in Juice: Curiosity or Concern? (3-4)

Thank you for your ongoing support of our efforts. As always, your comments, feedback, and suggestions are welcome at [comingalongside@runbox.com](mailto:comingalongside@runbox.com).

### ***Gulf of Mexico Oil Spill***

While Coming Alongside is not currently working on health impacts of the BP Oil Spill, degradation in air quality due to oil fumes is a potential health risk to residents in the states surrounding the Gulf. The [Louisiana Bucket Brigade](#) and the [Louisiana Environmental Action Network](#) are two resources for those interested in understanding more about such health risks and other environmental issues.

### ***Coming Alongside News***

Coming Alongside has kicked off its WhIM (Where it Matters) program with three important issues this year. Our Arsenic in Juice WhIM (highlighted in this issue) translates the latest research on arsenic in apple, grape, and other juices into understanding the risk for arsenic poisoning faced by any child who drinks these juices. Our Organic WhIM reassesses, for those of limited financial resources, the best choices for buying organic, in terms of both nutritional value and pesticide-based health risk. And, finally, our Canine Cancer WhIM attends to our furry friends and the corresponding escalation in dog cancers that have occurred over the last two decades in the United States. Look for ready-made flyers and dissemination materials for your community at our website later this year.

### ***Come Alongside Us!***

We invite you to come alongside us in whatever capacity you choose. In addition to monetary donations, we are always looking for enthusiastic volunteers to donate their time and expertise.

Visit our website at [www.comingalongside.org](http://www.comingalongside.org) or e-mail us at [comingalongside@runbox.com](mailto:comingalongside@runbox.com).

## Landmark Chemical Safety Legislation Introduced in Congress

by Ralph Scott

Current Law	Proposed Bill
EPA ↓ Must Prove Chemical Harmful to Regulate	Manufacturer ↓ Must Prove Chemical Safe to Remain on Market

On April 15, Sen. Frank Lautenberg (D-NJ) introduced [S. 3209](#), long-awaited legislation that would amend the [Toxic Substances Control Act](#) (TSCA), which governs the manufacture of chemicals. At the heart of the legislation is a requirement that manufacturers would have to demonstrate—and EPA (Environmental Protection Agency) would have to agree—that a chemical is safe for its intended uses in order to remain on the market. A “safe” chemical would present “a reasonable certainty of no harm.” EPA has used

such a risk-based standard, which encompasses both hazard and exposure, to assess pesticides since the late 1990s. A similar House of Representatives “discussion draft” has been authored by Rep. Henry Waxman (D-CA) and Rep. Bobby Rush (D-IL). TSCA presently requires EPA to prove that a chemical is harmful before the agency can regulate the substance.

As part of the proposed safety assessments of commercial chemicals, the bill would require EPA to consider both “aggregate exposure,” which adds together the public’s exposure to a single substance from all sources (such as air, water, and food), and “cumulative exposure,” which sums the public’s aggregate exposures to chemicals with similar effects (such as neurotoxicity).

The current TSCA law is widely recognized as ineffective. TSCA “grandfathered in” 62,000 chemicals at the time of enactment without requiring any testing or demonstration of safety. EPA has required testing for only a few hundred of those chemicals since then and has only partly restricted five. A growing body of science has shown widespread human exposures to toxic chemicals in everyday products and linked those exposures to serious chronic diseases and disorders, including reduced fertility, neurological harm, and certain cancers.

Another provision of the bill would require chemical makers to justify in writing any claims that information they submit to EPA about a product needs protection from public disclosure for business confidentiality reasons. EPA would have to approve requests for confidentiality and set a deadline of five years or less for confidentiality protections to expire. Currently, companies simply assert confidentiality claims with no expiration timetable and EPA must review or challenge the claims—something the agency rarely does.

[Safer Chemicals, Healthy Families](#)—a coalition of more than 200 public health and environmental organizations—generally supports the proposed bill, but it wants lawmakers to allow new chemicals to enter the marketplace only after they pass safety assessments. Under the Lautenberg bill, new commercialized chemicals would simply be added to the list of tens of thousands of commercial chemicals already on the market awaiting safety assessment by EPA. The coalition also wants the legislation to provide clear authority for EPA to immediately restrict production and use of the most dangerous chemicals that already have been extensively studied and that are restricted by governments in other nations.

## *Arsenic in Juice: A Curiosity or a Concern?*

*by Denise Wilson, PhD*

Recent testing of juices by the St. Petersburg Times and the University of Arizona has uncovered substantial amounts of arsenic in a wide variety of apple and grape juices. Many of the brands and batches tested contained amounts of arsenic higher than both the recommended limit in drinking water set by the EPA (Environmental Protection Agency) of 10 parts per billion and the total limit of arsenic consumption set by the ATSDR (Agency for Toxic Substances and Disease Registry) of 0.3



micrograms per kilogram of human body weight per day. Like mercury and lead, some forms of arsenic can be more hazardous than others. Unfortunately, most of the arsenic found in the University of Arizona study was of the inorganic kind—more hazardous by far than organic forms of arsenic.

The wide variability in arsenic content in multiple brands and various juices (between 0 and 500% of the recommended exposure limit in water) along with equally wide variability in the amount of juice consumed by different individuals makes it hard to understand these tests results. To make sense of the results, we looked at the University of Arizona test results from the perspective of the typical American child. Not only are children more vulnerable to arsenic poisoning (because they eat and drink more per body weight than adults), but the average child also consumes far more juice every day than the typical American adult. In addition, children are not only susceptible to the long-term known cancer risks of ingesting arsenic, but chronic arsenic poisoning has also been proven to lower the IQ of affected children.

The first step in understanding whether or not arsenic in juice is a health problem for children is to know and understand the exposure limits established for the American public by the federal government. For example, the EPA sets an exposure limit of arsenic in drinking water of 10 parts per billion which is equivalent to 10 micrograms (of arsenic) per liter of water. The ATSDR sets a similar limit of total arsenic consumption at 0.3 micrograms per kilogram of body weight per day. Translated, this limit means an adult male (180 pounds) can consume 24.5 micrograms of arsenic per day while a child (60 pounds) can only consume 8.2 micrograms of arsenic per day. We chose the ATSDR limit as a means to understand the juice study results because it accounts for children's increased vulnerability and also accounts for multiple potential sources of arsenic in the diet (seafood, water, juice, as well as other foods and beverages).

When using the ATSDR recommendations, the problem remains to realistically estimate how much arsenic a child is consuming on a regular basis. How much juice is the child drinking? How contaminated, on average, is that juice? How much fluid is the child consuming? What kinds of arsenic are involved in the contamination? All of these questions must be answered in combination to venture a guess as to whether parents need to be watchful of their beverage choices for their children.

Taking into account all of these questions and the average arsenic level in juice demonstrated by the University of Arizona study, we took a closer look at how much arsenic a child was consuming by drinking apple, grape, or another contaminated juice. First, we conservatively assumed that the

amount of arsenic that a child consumed from juice over a long period of time was the minimum of the amounts found in apple juice in the University of Arizona study (at 10 micrograms per liter of juice). Then, we calculated how much risk the child runs for drinking a certain amount of juice, on average, every day. The table below contains results for children of various body weights.

The entries in blue indicate where the combination of body weight and juice consumed leads to consumption of arsenic that exceeds the maximum recommended by the ATSDR.

Estimated Health Risk	Child's Body Weight (pounds)					
Daily Juice Intake (oz)	20	30	40	50	60	70
0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.5	0.4	0.3	0.2	0.2	0.2
10	1.1	0.7	0.5	0.4	0.4	0.3
15	1.6	1.1	0.8	0.7	0.5	0.5
20	2.2	1.4	1.1	0.9	0.7	0.6
25	2.7	1.8	1.4	1.1	0.9	0.8
30	3.3	2.2	1.6	1.3	1.1	0.9
35	3.8	2.5	1.9	1.5	1.3	1.1
40	4.3	2.9	2.2	1.7	1.4	1.2
45	4.9	3.3	2.4	2.0	1.6	1.4
50	5.4	3.6	2.7	2.2	1.8	1.5

For example, a child who weighs 40 pounds and drinks 25 ounces of juice a day is likely to be consuming 1.4 times the maximum recommended arsenic intake. A child who weighs 70 pounds and drinks the same amount of juice (25 ounces) is only consuming 0.8 times the maximum recommended intake (and is not at risk of chronic arsenic poisoning). As a point of reference, the recommended daily fluid intake in ounces (from water, juice, and all other sources) is  $2/3$  of the child's body weight. For example, a child who weighs 70 pounds should be drinking a total of  $70 \times 2/3$  (47 ounces) of liquid a day. Therefore, it is only children who drink more than half of their fluids every day from juice who are at almost certain risk of chronic arsenic poisoning.

The good news is that a wonderful alternative to arsenic-contaminated juice is at the disposal of every concerned parent, no matter where you live or where you shop. That magic alternative is an old-fashioned favorite: WATER. Drinking water in the United States rarely contains sufficient levels of bad forms of arsenic to be of any health concern. So, the very best way to avoid this new arsenic threat is to simply replace juice with water . . . this switch has the double advantage of avoiding arsenic and reducing sugar consumption. Two very good reasons to return to the old hydration standby—WATER . . . Drink Up! And if that does not work well for you, consider diluting the apple juice 50% with water.

### References

- Marshall, Tom. 2010. Arsenic in apple juice: How much is too much? *St. Petersburg Times*, March 14. <http://www.tampabay.com/news/health/article1079395.ece>.
- Roberge, Jason, Andrew T. Abalos, Julia M. Skinner, Mike Kopplin, and Robin B. Harris. 2009. Presence of Arsenic in Commercial Beverages. *American Journal of Environmental Sciences* 5 (6): 688-694.