

Chemical Warfare

By **ANTHONY TREWAVAS**

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Once again, the public is being bombarded with campaigns against chemicals. The World Wildlife Federation's recent "Generations X" biomonitoring campaign sends samples of blood or fatty tissue from volunteers to laboratories equipped to measure chemical traces so low they defy understanding. The tests detect traces of 30 to 80 synthetic chemicals. Using this information, the WWF argues that most chemicals should be banned or limited so much that the industry might as well close shop.

That synthetic chemicals come up in tests comes as no surprise. The traces of fire retardants (targeted by the WWF in its recent campaign) on my furniture and my television at least proves that these chemicals are doing their job -- protecting me. But WWF fails to provide the necessary information for the public to make a balanced judgment. Worse, a cardinal rule of toxicology is ignored: All chemicals are hazardous, depending on the dose. Drinking six pints of water quickly will kill the average adult from hyponatremia; an aspirin a day helps circulation but 40 stops it for good; you get the point.

So you'd need one million-fold higher amounts of brominated fire retardants than WWF found to disturb the thyroid. The group labels synthetic chemicals as carcinogens, teratogens (chemicals that damage the fetus), endocrine disrupters (which mimic estrogen), nerve toxins, or agents that induce sterility. All this is true, but only in rodents and only at doses hundreds of thousands times higher than people normally consume.

The chemicals to which human beings are most often exposed aren't made by man but by nature. Plants produce chemicals that kill insects and, occasionally, human beings. We all eat several thousand of these natural pesticides every day in our fruit and vegetables. But these are not the traces that the WWF and other antichemical activists talk about. Dried down, our daily consumption of natural fruit and vegetable toxins would occupy about a quarter of a teaspoon; the "deadly" synthetic traces that the WWF refers to can only be seen with a microscope.

Another charge the WWF makes only about synthetic traces is biopersistence. Yet any fat-soluble natural pesticide can linger in the body for years. The amount of solanidine, a fat-soluble nerve toxin, found in a single serving of potatoes can be detected years later with present technology.

Pick a biological effect (e.g. carcinogens or estrogen mimics) blamed on synthetic chemicals, and there are numerous natural chemicals that have exactly the same effect. Most food is only edible now because plant breeders have reduced natural pesticide contents, making plants safer for us to eat but in turn exposing the crop to potential insect damage. That is why farmers need to protect crops with a supplement of synthetic pesticides. Supermarkets are full of new vegetables and fruits, and we are constantly exposed to new panoplies of natural chemicals.

Some synthetic chemicals on the WWF complaint list actually are made naturally. Some brominated fire retardants such as methoxy PBDE are made by sponges and accumulate in sea mammals and fish. Like plants, these stationary organisms resort to superlative chemistry to kill predators. If you have eaten fish, you have consumed brominated fire retardants -- but courtesy of nature, not the chemical industry. Should governments ban fire retardants from being put into clothes, furniture, TV sets or airplanes because of the notional objections of WWF, we will all be at a very real risk of death or disfiguring burns.

Campaigns of this kind not only damage innovation, research and employment in the chemical industry but ultimately cost us as consumers who pick up the tab at the end.

Life expectancy continues to increase. Overall cancer rates have been in decline for 50 years. We are a healthier population, and chemicals of many kinds have helped us on our way. We certainly should protect ourselves against unnecessary chemical incursion. But if we make policy based not on the best scientific understanding but instead on imagined dangers or what-ifs, we rely on ignorance. In that case we might as well go back to reading entrails.

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