

NTA: Coming out in the wash?

The Environmental Protection Agency's recent decision to allow detergent manufacturers to resume using the weak carcinogen NTA caught the attention of at least one environmental group. That group, the Environmental Defense Fund, may petition EPA under the Toxic Substances Control Act to keep NTA off the market until certain questions are answered.

EDF lawyer Jacqueline Warren says EPA has not determined, for example, the "ultimate environmental impact of NTA." The chemical, nitrilotriacetic acid, was introduced to the detergent industry in the late 1960s as a dirt-particle trapper that, unlike phosphates, would not boost growth of algae in streams and rivers. Ironically, results of studies on the effect of NTA on algal growth remain inconsistent: EPA's recently released risk assessment of NTA reports such studies demonstrate "both [algal] growth inhibition or growth stimulation, depending upon the species tested and the water characteristics."

Warren also is concerned with the human health impact of NTA since, according to the EPA risk assessment, the production of an estimated 1 billion pounds per year of the substance could expose "virtually the entire U.S. population" to continuous low levels of NTA in drinking water and detergent products. "The fact that EPA dismisses it [NTA] as a weak carcinogen doesn't make me feel better," says Warren, "because there are already about 32 other carcinogens in drinking water and no one knows what the interacting, or synergistic, effects of those could be."

The incredible hull

Peanut lore already may boast some difficult acts to follow — those of botanist George Washington Carver, for example — but that did not stop Chia-Ming Chen from making goober history. Chen, of the University of Georgia at Athens, recently developed a low-cost wood adhesive in which as much as 80 percent of the petroleum derivative phenol can be replaced with a chemical extracted from peanut hulls.

Adhesives are needed to glue together wood chips for particleboard and veneer for plywood. Although there are two types of such adhesive resins, only phenolic resin is water-resistant and can therefore be used to manufacture exterior woods. Phenolic resins also are used in the production of formica, telephone receivers, brake linings, toys and plastic items.

Unfortunately, since phenol is made from benzene — a petroleum-product derivative — it is a scarce commodity during petroleum shortages.

When phenol was particularly scarce during the 1974 Arab oil embargo, Chen began his search for a phenol substitute. The peanut-hull derivative emerged the victor in that search not only because the extraction process — for which Chen recently received four U.S. patents — uses 98 percent of the hull and produces no chemical wastes, but also because, as the researcher explains, "We've got plenty of peanut hulls."

Chemistry capsules

- An average of 50 insect fragments or 1 rodent hair or more per 50 grams of flour will trigger regulatory action against the manufacturer of the contaminated flour, the Food and Drug Administration recently announced.
- To reduce the number of deaths of waterfowl as a result of eating spent lead pellets, the U.S. Fish and Wildlife Service has established certain steel-shot-only hunting zones.
- Inorganic arsenic — released by copper, zinc and lead smelting operations — recently was added to the Environmental Protection Agency's list of Hazardous Air Pollutants, a list that also includes asbestos, mercury and four other substances.

The lead factor in acid rainwater

It's raining more than water in Clarion County, Pa., and the result may be toxic drinking water for those who rely on cistern-catchment systems. What's more, since conditions there do not appear to be unique, they may spell a general threat to all Northeast cistern users. This concern stems from a preliminary study by William E. Sharpe and co-workers at Pennsylvania State University that found high levels of lead in the county's acid rainwater and in tapwater from area homes that rely on rainwater-catchment systems.

The suggested minimum pH for drinking water is 6.5 (on a scale where numbers decreasing from 7, a neutral pH, designate increasing acidity). Rainwater in the study area ranged from a high of 3.9 in summer to 3.68 in winter. On a "scale stability index," this water demonstrates a very high corrosive potential, and Sharpe believes it is no coincidence that the water is both acidic and high in lead; once the pH climbs to 4 or 5, he says, metals begin to precipitate out.

Lead concentrations in rain averaged 24 micrograms per liter, just under the 25 μg maximum the National Academy of Sciences has suggested for drinking water. However, levels of lead in snow plus dry fallout (or airborne particulates) averaged 5.5 times higher than those for rain, 2.5 times higher than levels permitted by the federal Safe Drinking Water Act.

Interestingly, lead concentrations in water from the top of the cisterns where water is stored were lower than either rainwater or tap levels. Sharpe speculates that sealers inside the cisterns may have been broken so that the water became neutralized in a chemical reaction with the cistern walls. One explanation for lead's reappearance out the tap could be that the corrosive water is leaching metal from solder in the plumbing. Of 35 homes checked, five had lead levels in tap water that exceeded safe limits; residents have been advised not to drink the water.

Confusion grows over Love Canal study

Review panels have been seesawing over the significance of a study reporting chromosome abnormalities in the blood of 11 Love Canal residents (SN: 5/24/80, p. 325). A planned review by eight scientists convened for the Department of Health and Human Services ended in a stormy denunciation of the study's design and report on May 21 after the panel was denied access to slides and photos of the data. One week later, a review for the Environmental Protection Agency came up with ostensibly the same criticism. More damning, after viewing the data they charged that the original researchers misread their data; this EPA panel found no signs of unusual chromosome changes. But a June 5 letter to EPA by Jack Kilian — a former colleague of the study's author — and two others announced that they too had reviewed the study and indeed found unusual chromosome damage as originally reported.

Coming — a fishy classic

If an atlas to be published in July by the Interior Department's National Fishery Research Laboratory (SN: 6/21/80, p. 398) appeared 10 years earlier, that epic conflict between the snail darter and Tellico Dam might have been avoided. The 825-page volume is the first to illustrate every fish species native to the United States and Canada — all 770 of them — and map their distribution. It also describes their habitats, relative abundance and life histories. It could prove a boon to biologists working on environmental-impact assessments. "I personally think it's going to be a classic," says James McCann, director of the laboratory. "If I don't accomplish anything else, it will have been worthwhile just producing this atlas."