CHEMICAL & ENGINEERING NEWS

Brain damage in rats from fluoridated water

An animal study links low levels of fluoride in water to brain damage *[Brain Res.* **784,** 284 (1998)]. The research was a collaboration among a chemist and two psychologists (including lead author Julie A. Varner) at Binghamton University, Binghamton, N.Y., and an EPA neurotoxicologist. Twenty-seven rats were divided into three groups and for one year were given either distilled water, distilled water with 2.1 ppm NaF—the same concentration of fluoride normally used in fluoridated drinking water—or distilled water with 0.5 ppm AlF_3. In both treated groups, the aluminum levels in the brain were elevated relative to controls. The researchers speculate that fluoride in water may complex with the aluminum in food and enable it to cross the blood-brain barrier. Both treated groups also suffered neural injury and showed increased deposits of ß-amyloid protein in the brain, similar to those seen in humans with Alzheimer's disease. "While the small amount of AlF_3 . . . required for neurotoxic effects is surprising, perhaps even more surprising are the neurotoxic effects of NaF" at 2.1 ppm, the authors write. ◄