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ANTIFREEZE ANTIPOISONING ADDITIVES

INTRODUCTION

Since 1995, several states have enacted laws requiring the addition of denatonium benzoate or another bittering agent to automotive antifreeze in order to prevent accidental poisonings of children and pets. Other states, and the federal government, have or are currently considering similar legislation. No similar bills appear to have been introduced in Wisconsin in the last 10 years. This brief discusses the public safety issue of mandating anti-poisoning agents in toxic products, focusing on denatonium benzoate, the most commonly used additive.

PREVENTING POISONINGS

The Problem. Ethylene glycol is an extremely toxic liquid that is a prime ingredient in engine antifreeze. It tastes and smells sweet, which, when combined with the bright coloring of most antifreeze products, makes it attractive to children and animals, with often deadly results. Methanol (methyl alcohol), the key component in windshield washer solution, is also very hazardous. Although both products are sold at retail with child-resistant packaging, the danger comes when children are drawn to opened containers or when animals ingest them in situations like a driveway spill.

A 2002 report of the American Association of Poison Control Centers reported over 6,000 cases of ingestion of these products that year, mostly by children, of which 40 were fatal. The American Veterinary Medical Association estimates that as many as 10,000 animals die each year from drinking spilled or discarded antifreeze and windshield washer solution. How-

ever, not all poisonings involving these products are accidental. Numerous suicides, and some homicides, have been attributed to drinking of antifreeze, and people have been known to cruelly kill dogs and cats by leaving out antifreeze-laced bait. It takes only one teaspoon of ethylene glycol to kill a cat.

A Solution. Denatonium benzoate, sold under trade names such as Bitrex or Aversion, has been described as the most bitter substance known. Small amounts of this nontoxic chemical can make almost any product unbearably unpalatable to most humans and other mammals. It was accidentally discovered in 1958 by scientists at the Scottish firm Macfarlan Smith during research on local anesthetics (it is related to lidocaine). Its potential to prevent accidental poisonings soon became widely recognized. First used in denaturing alcohol, making it legally unfit for consumption, countries such as Great Britain, Germany, Australia, and Japan mandated use of it or similar aversive agents in potentially harmful household products.

Because of its proven effectiveness as a consumption deterrent and the fact that it is not known to pose any long-term health risks, denatonium benzoate was approved by the Federal Food and Drug Administration in 1963 for use in consumer products. Since then, in addition to antifreeze and windshield washer fluid, many manufacturers have voluntarily included it in numerous household items, such as nail polish, paints, disinfectants and cleaning fluids, rubbing alcohol, paints and varnishes, solvents, and pesticides.

Cost. The addition of 30 parts per million of denatonium benzoate is considered effec-

tive in discouraging consumption. One leading manufacturer reported that including this minute concentration does not add significantly to the products' price. A cost of less than 3 cents per gallon of antifreeze or coolant was cited in a report accompanying federal legislation. Some companies add the bittering agent to all of their antifreeze, which simplifies national distribution, and some only in states that require it.

OREGON: FIRST STATE LAW

In 1995, efforts that began with a citizen activist concerned about animal and child antifreeze poisoning resulted in Oregon becoming the first state to require the addition of an aversive agent to discourage ingestion of antifreeze and windshield washer fluid. The law is in Sections 431.870 through 431.915, Oregon Revised Statutes.

In its "Legislative Findings," the law states that adding aversive agents to toxic products in order to protect children and pets is endorsed by the National Safety Council, the American Medical Association, and the American Association of Poison Control Centers. Any listed toxic household product sold in the state and manufactured after July 1, 1993, must include a bittering agent approved by the Poison Prevention Task Force in a concentration high enough to render it unpalatable. It specifically applied the law to antifreeze containing 10 percent or more ethylene glycol by weight and windshield washer fluid containing four percent or more methyl alcohol by weight.

The Poison Prevention Task Force, created by the law, is a permanent body that meets as necessary to perform duties such as making recommendations regarding covered products and poison prevention educational activities. The five members are the medical director of the Oregon Poison Center (chair), the state director of human services, and three members appointed by the governor: a pediatrician, a chemist from an academic institution, and a

representative of a manufacturer of toxic household products.

The law is primarily enforced by actions brought by the Oregon Department of Human Services, and may result in a civil penalty not to exceed \$5,000 for each day of violation. In addition, any person may file a court case seeking an injunction, punitive damages, and attorney fees. Manufacturers or sellers of products containing bittering agents are exempt from liability for personal injury or death or property damage, provided the product contains the aversive agent in a concentration approved by the Poison Prevention Task Force.

OTHER LEGISLATIVE ACTIVITY

States. In addition to Oregon, laws requiring the addition of denatonium benzoate in commercial containers of automotive antifreeze liquid have been enacted by Arizona, California, Maine, and New Mexico. California's Business and Professions Code Section 17582, enacted in 2002, permits substitution of another aversive agent if it meets or exceeds the effectiveness of denatonium benzoate. Illinois, Maine, New York, and Ohio are considering measures in the 2007-2008 legislative session. Other states which have recently considered legislation include Alabama, Massachusetts, Missouri, Nevada, New Jersey, Pennsylvania, Tennessee, and Virginia.

Federal Legislation. The U.S. Conference of Mayors in 2004 passed a resolution urging Congress to protect children and animals by requiring denatonium benzoate as an additive to antifreeze. The American Veterinary Medical Association also called for a national standard. Congress considered, but did not pass, S. 1110 and H.R. 2567, the "Antifreeze Bittering Agent Act of 2005."

During debate on the legislation, questions were raised regarding the effect of denatonium benzoate on the environment, any long-term health risks, and whether Congress should restrict states' ability to use other options.