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LETTERS

Reacting to Gasoline Additives

The short article "Alaskan illnesses remain a mystery" (Random Samples, 14 Jan., p. 177) states that the U.S. Environmental Protection Agency (EPA) has dismissed the gasoline additive methyl tertiary butyl ether (MTBE) as a possible cause of illness in Alaska. However, some health officials have not. In November 1992, after complaints were received from residents in Fairbanks, Alaska, epidemiologic studies were undertaken jointly by the Alaska Division of Public Health and the National Centers for Disease Control and Prevention (CDC) in Atlanta, Georgia. These studies found an association between exposure to oxygenated gasoline and the reporting of symptoms such as headaches, dizziness, and nausea. Higher amounts of MTBE were detected in the blood of persons exposed to motor vehicle exhaust or gasoline fumes in Fairbanks during the period of oxygenated fuel use than were detected after its use was suspended (*1*). Evaluation of the data resulted in a decision to not use MTBE in Alaska during 1993 and 1994 pending results of additional research.

MBTE is added to fuels to reduce carbon monoxide and smog. But smog is not a problem in Alaska. Both Anchorage and Fairbanks have implemented comprehensive inspection and maintenance programs and other measures to improve ambient air quality. Carbon monoxide levels have fallen dramatically in the past decade. During the past several years, each city has experienced only a few days in which EPA carbon monoxide standards were exceeded.

More research on MTBE is needed, as more than 100 million Americans are being exposed to MTBE and its combustion products. Unfortunately, federal funding for further study has not been made available to CDC or to the Alaska Division of Public Health, leaving the EPA and state and local communities with scant data about the use of MTBE at arctic temperatures to assist in developing strategies for the upcoming winter season.

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1. R. L. Moolenaar, B. J. Hefflin, D. L. Ashley, J. P. Middaugh, R. A. Etzel, in preparation.

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Is Dioxin a Human Carcinogen? (Continued)

Alex Apostolou (Letters, 7 Jan., p. 14) states that "[d]ioxin's link with human cancer has not been established." His letter was prompted by Ann Gibbon's statement (Research News, 26 Nov., p. 1373) "[i]n human beings, there is evidence that high doses of [dioxin] cause cancer. . . ." Gibbons in turn responds to Apostolou's letter by citing five recent epidemiological studies that "show an increased risk of cancer for humans who have been exposed to high concentrations of dioxin" (Letters, 7 Jan., p. 14). These studies (*1–5*) leave much to be desired in terms of confirming such a risk.

Fingerhut *et al.* (*1*) in the abstract of their paper state, "[e]xcess mortality from all cancers combined, cancers of the respiratory [system], and soft tissue sarcoma may result from exposure to TCDD [dioxin], although we cannot exclude the possible contribution of factors such as smoking and occupational exposure to other chemicals." Further, in an editorial accompanying the paper, J. C. Bailar states (6, p. 260),

> Fingerhut *et al.* . . . present a new study of the matter. Results are again equivocal . . . the differences were for the most part not statistically significant, and the exceptions might be explained by a combination of small, unavoidable biases in the data and the multiple post hoc comparisons. (Examine enough data at the usual 5 percent level of significance, and about 1 time in 20 you will find a statistically significant result where there is no real effect.)

This fallacy I refer to as "Bailar's syndrome."

The Bertazzi study (*2*) of Seveso accident victims in Italy is difficult to summarize with so many different tumors showing an increased, and others a decreased, incidence of different types of cancer. Further, three population zones with different exposure concentrations were analyzed. The zone with the highest concentration had no increased cancer incidence, and this was attributed to a "small population size, youth of the subjects, and short follow-up period"