

Chris Carter  
Superintendent,  
Reed Union School District

November 10, 2007

Re: Turflon

I am a Professor of Medicine, Psychiatry and Biopharmaceutical Sciences and Chief, Division of Clinical Pharmacology and Toxicology at the University of California San Francisco. I am a board certified internist and medical toxicologist. The California Poison Control Center is part of my division. I have consulted on a number of risk assessment matters. I have served on an EPA advisory board conducting a risk assessment on second hand smoke.

I have been asked to comment on the purported risks of Turflon as a potential cause of cancer, kidney damage, genetic damage and neurological damage. I have not had time to conduct an exhaustive review of the literature on Turflon. I have reviewed the EPA Registration Eligibility Decision on triclopyr, the active component of Turflon. The Registration Eligibility Decision is based on a review of relevant toxicological studies using standardized methodologies.

One of the key principles in toxicology is the consideration of the dose-response for toxic effects. Virtually any chemical can cause injury at a high enough dose. For example in high doses saccharin causes cancer and caffeine cause birth disorders in animals. Yet the medical literature shows no evidence of harm when used by people. When the EPA approves a chemical for use in situations where there are potential human exposures, it considers the dose-response. For risk assessment purposes the EPA seeks to determine the exposure levels that produces no observable effects in animals, and then assumes that human exposure of 1/100 of this level is acceptable. In other words, the EPA determination of acceptable levels of triclopyr in humans is a conservative assumption, implying that it would take 100 times the human exposure level to produce any effect in animals. In the case of triclopyr and its degradation product TCP, the FDA determined that triclopyr meets those registration requirements.

In high doses triclopyr causes certain types of tumors in rats. On the other hand, a panel of tests indicate the triclopyr is not mutagenic, meaning its does not damage DNA, which is the usual cause of chemical-induced cancer. The human exposure to triclopyr from soil is many-fold lower than that which causes cancer in animals. These are reasons triclopyr is not perceived to be a cancer risk in people.

Neurological toxicity is purported to occur as a result of the action of the triclopyr breakdown product, TCP. However, similar to the discussion above, the levels of

TCP in soil are much lower than those thought, but not shown, to have effects on brain function in people.

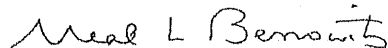
It should be noted that triclopyr is not very well absorbed through the skin. It is not likely that children will eat a lot of soil. Therefore exposure to tricholopyr, even if it is present in the soil, does not result in very high levels of exposure.

In summary the EPA has determined that triclopyr is safe for human when it is used as an herbicide at the levels considered for use. They have determined that "no harm will result to infants and children or to the general population from aggregate exposure to triclopyr residues under the use conditions ...specified...". This judgement was made conservatively, not on the basis that it has no effects at high doses in animals, but based on the fact that human exposure is expected to be less than 1/100 of that expected to produce any effect at all in animals.

Furthermore, I understand that there has been concern about toxic effect of kerosene, which is component of the herbicide that is proposed for use on school properties. Kerosene is harmful when taken into the lung or ingested in large amount orally. Kerosene is volatile and evaporates quickly after application. It is very unlikely that a child would come into contact with kerosene if used as proposed. The only concern would be if a child drank the pesticide product directly. That, too, is highly unlikely.

I would be happy to answer any question from the RUSD School District or Board Members..

Your truly,



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