

## SEATTLE POST-INTELLIGENCER

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### That buttery aroma might be toxic, too

#### Common chemical in popcorn at center of concern

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Pop Weaver, one of the largest producers of microwave popcorn, is removing a controversial chemical flavoring agent from its products.

The chemical -- diacetyl -- adds buttery taste. Government worker safety investigators have linked exposure to the synthetic butter to the sometimes fatal destruction of the lungs of hundreds of workers in food production and flavoring factories.

And while Pop Weaver has dropped diacetyl from its product, it remains in widespread use in thousands of other consumer products, including the microwave popcorn brands Orville Redenbacher and Act II.

Despite the worker safety findings -- and despite scores of jury decisions and settlements awarding millions of dollars to workers who sued after having their lungs destroyed by exposure to diacetyl -- neither the Food and Drug Administration nor the Consumer Product Safety Commission have investigated. The FDA years ago declared the chemical safe for consumption. Labels on almost all products containing it call it a flavoring and only rarely do the labels mention diacetyl.

The only government investigators to examine whether consumers are at risk -- whether diacetyl is released when consumers pop corn in their home microwaves, and if so, how much -- is the Environmental Protection Agency. But to the frustration of many public health workers, the findings of the EPA's study -- which began in 2003 and was completed last year -- have been released only to the popcorn industry.

In part, it was the EPA's study that led Pop Weaver to reformulate its flavoring without diacetyl, said Mike Weaver, chief executive officer of the 80-year-old family-owned company.

"We have to have good flavors, but at the same time we have to have ingredients that consumers feel good about and we were hearing too many concerns raised about diacetyl," he said. "With these growing concerns and with EPA's actions, we felt it was the prudent to stop using diacetyl and we have."

In addition to Pop Weaver and six other private brands, the Indiana-based company also sells "Trail's End" popcorn for the Boy Scouts of America. Five million boxes were sold last year, the Scouts said.

"Maybe the big food conglomerates don't take diacetyl seriously, but we take it very, very seriously," Weaver said. "We sell popcorn only. Without it, we're out of business."

ConAgra Foods, which says it is the largest supplier of the 3 billion bags of microwave popcorn sold worldwide each year, declined to comment on Pop Weaver's action.

However, in interviews earlier this month, corporate spokeswoman Stephanie Childs told the Seattle P-I that ConAgra has been "looking at the diacetyl issue very seriously over the years."

Scientists and consultants for ConAgra, whose brands include Orville Redenbacher and Act II, found in 2004 that diacetyl was released when freshly popped bags of corn were opened. However, Childs said that the company saw no need to change its flavorings.

"Based on all the information we have available to us, we are confident the everyday, normal use of butter-flavored microwave popcorn in the home is safe," she said.

But in a November 2004 letter to the EPA, Patricia Verduin, ConAgra's senior vice president for product quality, wrote: "We believe it is imperative that the health and safety of this product be assured to the extent possible within the very near future." In the letter to the then-head of the EPA's Office of Research and Development, she said that ConAgra had developed a "Consumer Exposure Risk Index" to address potential health concerns from material released when the bag of popped corn is opened.

ConAgra declined to discuss what level of risk it documented to consumers from vapors from diacetyl, other flavoring ingredients or the bag itself.

"We shared that information with EPA on a confidential basis and we look to them for the next step," Childs said. "We, as well as the rest of the world, are awaiting the release of EPA's study."

But the industry already knows what the EPA found, according to George Gray, the current head of the EPA's office of Research and Development. He told the P-I that the popcorn industry was given the opportunity to review the final results before the study was submitted for publication.

Gray said there was nothing improper in allowing the industry to review the findings, saying it was necessary to convince industry that none of their confidential business information, such as what the flavoring agents are and the construction of the popping bag, was released to the public.

Further, Gray said the information could not be released to other public health professionals because it would prevent his scientists from getting their work published in peer-reviewed journals.

However, most prominent medical and scientific journals said that exceptions are always made.

"We're not going to punish researchers for disclosing information that is of vital interest to the public health," said Karen Pedersen, manager of media relations for The New England Journal of Medicine.

"EPA cannot be permitted to play these games with matters that are important to public health. This is just questionable science at its worst," said David Michaels, director of the Project on Scientific Knowledge and Public Policy at George Washington University's School of Public Health. "Diacetyl is a dangerous chemical, declared safe, for the most part, by the flavoring industry."

The importance of the EPA's findings is increased because no one outside the industry is examining what consumers and workers who pop corn in theaters, discount stores, school gyms and fairgrounds are being exposed to.

Through 2003 and 2004 there was heavy news coverage of federal occupational health specialists investigating the cases of hundreds of workers sickened at six Midwest popcorn plants. The National Institute for Occupational Safety and Health, which investigates worker health issues, had determined that it was exposure to the vapors from heated butter flavoring that was debilitating the workers. The most likely culprit, the health detectives concluded, was the diacetyl in the flavoring. All of the workers who were diagnosed with bronchiolitis obliterans or other serious lung injuries worked with the flavoring.

In the midst of this, Jacky Rosati, an investigator from the EPA's National Risk Management Laboratory in Research Triangle Park, N.C., said she would try to determine how much diacetyl consumers might be exposed to when they popped corn at home.

Rosati and her team, all scientists with the EPA's Indoor Environmental Management Branch, collected multiple bags of 50 of the most popular brands of microwave popcorn.

The corn was popped in a specially constructed box containing an old microwave and air collection filters. Measurements were taken of the type and concentrations of the chemicals detected in the vapor or steam released when the bags are opened.

"We said let's look at what goes into the bag, popcorn, chemical ingredients, materials that coat the bag, and then let's determine what gets released into the indoor air when you pop it," said Bill Farland, then the EPA's deputy assistant administrator for science, research and development.

The final corn was popped and the data collected in the fall of 2005 and Rosati's report was sent to EPA scientists for review.

Meanwhile, more cases of the lung disease were being reported to the NIOSH. More workers are fighting to get onto lung transplant lists, which is their only hope for survival. The manager and the owner of a Detroit company that manufactures popcorn carts were diagnosed. The death of a man who was Montana's largest popcorn supplier was attributed to the popcorn flavoring he used. The NIOSH found that his daughter and son-in-law who took over the family business were also sickened, this time from the butter-flavored oil they used.

Back at the EPA, Rosati was waiting for industry -- three popcorn companies and the flavoring trade association -- to complete its review.

"This is not the way that our government agencies should be protecting the public's interest," said George Washington's Michaels. "With this arm-in-arm relationship between government scientists and the industry using diacetyl, how can the public feel that they are learning the truth about this chemical which is in thousands of products?"

It had to be done with industry's help, said Farland, who has since retired. He said he doubted that the EPA would have authorized the study if Rosati had proposed to do it without industry involvement.

"The only thing that industry got to look for is confidential business information," said Jennifer Wood, the EPA's press secretary. "They could make no changes to the findings."

Meanwhile, as the study was being offered to various journals, the tally of injured workers increased and became more varied. They came from a candy factory in Chicago, from a Tennessee potato chip company, and one, then three, and now more than 20 from six different California companies that made and sold flavorings with diacetyl. Their physicians say a couple will die because they won't survive the wait for a transplant. Back in Washington, the EPA says that a journal, which it declined to identify, will publish Rosati's study "this fall."

Ultimately, all Rosati can report is the amount of diacetyl and other chemicals released when the bag is opened. The study wasn't designed to provide any health-related answers, Gray acknowledged.

Without more knowledge about the toxicity of diacetyl no one can extrapolate the hazard of what is released when the popcorn is opened, or from any of the other diacetyl-containing products used in the home. This is because no one knows specifically what amount of diacetyl will harm humans. That's likely to remain the case unless the industry decides to share its knowledge or the FDA reverses course and decides testing is needed after all.

## **SECRET INGREDIENTS: A CONTINUING EXAMINATION OF THE SAFETY OF OUR FOOD**

### **WHAT IS DIACETYL?**

A naturally occurring substance found in many dairy products and some wine. It was first produced synthetically in Europe and is added to thousands of foods throughout the world to increase or enrich butter flavoring.

### **WHAT PRODUCTS CONTAIN DIACETYL?**

Microwave popcorn, potato chips, baked goods and candies, frozen food, artificial butter, cooking oils and sprays, beer, dog food and others.

### **HOW DIACETYL HARMS PEOPLE**

**Worker hazards:** In manufacturing plants, it's been linked to bronchiolitis obliterans -- irreversible obstructive lung diseases -- for which lung transplants are often the only way to survive. Lawsuits against diacetyl manufacturers by hundreds of workers in popcorn, flavoring and other food plants claiming injury from breathing diacetyl have led to jury awards and settlements of more than \$20 million.

**Consumer hazards:** The Food and Drug Administration and the Consumer Product Safety Commission have declined to study the impact on consumers. The Environmental Protection Agency has looked at the vapors from heated diacetyl as an air pollutant but has not released the results to the public or to public health professionals.

**Pending action:** Congress ordered the Occupational Safety and Health Administration to develop and enforce standards for worker exposure to diacetyl. In California, legislation has been drafted that would ban the use of diacetyl by 2010. Rep. Rosa Delauro, D-Conn., has asked the FDA to ban diacetyl until it can be thoroughly studied.

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