

1107

## **Control of Mites and Insects in Pet Food Packages Using Controlled Atmospheres**

Bhadriraju Subramanyam and Xingwei Hou  
*Department of Grain Science and Industry*  
*Kansas State University, Manhattan, KS 66506*  
*sbhadrir@ksu.edu*

Insect infestations in packaged pet food products can be costly because of product returns and loss of customer goodwill. The reasons for infestation in packaged products could be due to poor seals, ability of insects to penetrate packages, poor handling practices that result in damage to packages, or presence of insects/mites at the time of packaging. Infestation of packaged products costs manufacturer's millions of dollars annually, and more research is needed to identify factors contributing to infestations in packages and methods to mitigate losses in packaged finished products. During 2007 – 2008, we examined the ability of selected insects and a mite species to infest two different packaged products—one a corn-based cat litter and the other, a pet food for dogs. Extensive laboratory tests were conducted to determine suitability of the litter to sustain insect infestation and effects of various combinations of oxygen, nitrogen, and carbon dioxide at different temperatures on various life stages of insects. The use of low oxygen concentrations inside packages of dog food on mite survival over time were studied, along with some preliminary tests on the use of ascorbic acid as an oxygen scavenger to reduce oxygen levels inside packages. These laboratory and field tests showed promising results on the use of modified atmospheres in protecting packaged foods from insect/mite infestations.