

Donahaye, E.J., Navarro, S. and Leesch J.G. [Eds.] (2001) Proc. Int. Conf. Controlled Atmosphere and Fumigation in Stored Products, Fresno, CA. 29 Oct. - 3 Nov. 2000, Executive Printing Services, Clovis, CA, U.S.A p. 763

PROPYLENE OXIDE. A REGISTERED FUMIGANT, A PROVEN INSECTICIDE

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ABSTRACT

(Full paper not available)

Pesticides. are they all bad? Are they and their by-products all highly toxic? Are they all persistent in the human body and in the environment? Propylene Oxide (PPO) is outside of this popular perception. It is a highly versatile chemical, with many safe and large-volume uses, including use in food emulsifiers, surfactants, starch modifiers, urethane foams, cosmetics, polymers and of course propylene glycol. Propylene glycol is a (GRAS) food additive and the basis for the non toxic Sierra antifreeze. Over 10 billion pounds are produced annually in highly automated and analytically controlled facilities. The production of PPO is not likely to be discontinued; it is not an ozone depleter and it is environmentally benign. One of the safe uses for it is in food sterilization. Since 1958 PPO is the only FDA/EPA-authorized sterilant for reducing bacteria, mold and yeast in nutmeats and cocoa powder. For food fumigation it is regulated by CFR 40 part 185.15 which has established a residue tolerance of 300 ppm for nutmeats, cocoa powder and spices. It is also used to sterilize spices and has been used as an insecticidal fumigant in the past.

This presentation covered the following topics: Properties of PPO; equipment and procedures for food sterilization; fumigation studies of stored-product insects; utilization of mixtures of PPO and inert gases; equipment and procedures for insect fumigation; relationship to aflatoxin formation; pending research; and comparison with other candidates for methyl bromide (MB) replacement.