

MICROENCAPSULATED PESTICIDES - A NOVEL CONTROL RELEASE
SYSTEM FOR INSECT CONTROL

JOSEPH SIMKIN
Pennwalt Corporation
Technological Center
900 First Avenue
King of Prussia, Pennsylvania 19406
U.S.A.

ABSTRACT: In 1973 Pennwalt Corporation introduced to United States agriculture a new type of controlled release pesticide formulation called PENNCAP-MO INSECTICIDE (Microencapsulated methyl parathion). The ready acceptance by the agricultural community has encouraged Pennwalt to expand the market to include Europe, the Near East, Mexico, Canada, Central and South America. Pennwalt's process for encapsulating pesticides is based upon a patented interfacial polymerization procedure which produces microspheres containing the active material encased in a plastic shell. Some of its advantages are: controlled release of pesticide, enhanced persistence of organophosphate pesticides; sharply reduced mammalian toxicity, reduced phototoxicity; reduction of amount of pesticide introduced into the environment. A unique feature is the versatility of the process for effecting modifications of the capsule wall so that optimum release rate of the encapsulant can be realized for each type of application. This can be demonstrated by a brief explanation of the encapsulation process. Because of this versatility the above encapsulation technique has produced useful formulations for various applications. These include: foliar and soil insecticides; herbicides; insect repellents; insect attractants; pesticides for insects affecting man and livestock; and household pesticides.

Application of microencapsulated pesticides for control of stored product insects is a logical extension of this concept. One objective is the utilization of an economically low dose of pesticide to provide a required minimal residual protection of stored products in shipment. A prognosis for practical utility is based upon results obtained in two separate preliminary probes on stored products. An increased emphasis on evaluations of this technique for insect control in stored products is recommended.