



PROCESS ECONOMICS PROGRAM

SRI INTERNATIONAL
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Abstract

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PESTICIDES AND INTERMEDIATES

(March 1988)

This report evaluates the manufacture of two insecticides, methomyl and fenvalerate, as well as their intermediates.

Methomyl is made by carbamylation of methomyl oxime, which is made from acetaldehyde, hydroxylammonium sulfate, and methyl mercaptan. The carbamylation can take place in an organic solvent or in water. Methyl isocyanate is purchased or produced *in situ* from methylamine via N-methyl formamide. All these process variations are evaluated.

Intermediates evaluated are methyl mercaptan, hydroxylammonium sulfate, m-phenoxybenzaldehyde, isopropyl chloride, and thionyl chloride. For m-phenoxybenzaldehyde, an important intermediate for fenvalerate as well as for several other synthetic pyrethroids, we evaluated two processes (one from m-cresol, and another from benzaldehyde). The latter process has better economics.

SRI International

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**PESTICIDES AND
INTERMEDIATES**

SUPPLEMENT C

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