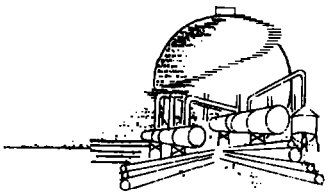

PROCESS ECONOMICS PROGRAM

SRI INTERNATIONAL
Menlo Park, California
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Abstract

Process Economics Program Report No. 171C

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-phenoxylbenzaldehyde, 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.

PEP'86 Y. C. Yen

SRI International

Report No. 171C

PESTICIDES AND INTERMEDIATES

SUPPLEMENT C

YEN-CHEN YEN

with contributions by TSANG-HAI LU, REN-BEN CHEN, CHIH-WEI LEE and SHIH-YUEH WU

March 1988

A private report by the

PROCESS ECONOMICS PROGRAM

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For detailed marketing data and information, the reader is referred to one of the SRI programs specializing in marketing research. The CHEMICAL ECONOMICS HANDBOOK Program covers most major chemicals and chemical products produced in the United States and the WORLD PETROCHEMICALS Program covers major hydrocarbons and their derivatives on a worldwide basis. In addition, the SRI DIRECTORY OF CHEMICAL PRODUCERS services provide detailed lists of chemical producers by company, product, and plant for the United States and Western Europe.

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