SHAUGHNESSEY NO. _____ REVIEW NO. _____

EEB REVIEW

DATE: IN 3-12-86 OUT 06 MAY 1986

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PETITION OR EXP. NO. _____

DATE OF SUBMISSION 2-14-86

DATE RECEIVED BY HED 3-11-86

RD REQUESTED COMPLETION DATE 4-10-86

EEB ESTIMATED COMPLETION DATE 4-10-86

RD ACTION CODE/TYPE OF REVIEW 192

TYPE PRODUCT(S) : I, D, H, F, N, R, S Synthetic Pyrethroid

DATA ACCESSION NO(S). 261610

PRODUCT MANAGER NO. G. LaRocca (15)

PRODUCT NAME(S) Asana 1.9 EC

COMPANY NAME Shell Oil Company

SUBMISSION PURPOSE Proposed substitution of SS inimer (ASANA) for the racemic mixture (Pydrin)

SHAUGHNESSEY NO.	CHEMICAL, & FORMULATION	% A.I.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

0 6 MAY 1986

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: Substitution of SS isomer (ASANA) for the racemic mixture (Pydrin)

THRU: Norman Cook, Head-Section 2
Ecological Effects Branch
Hazard Evaluation Division (TS-769-C)

THRU: Michael W. Slimak, Chief
Ecological Effects Branch
Hazard Evaluation Division (TS-769-C)

TO: George LaRocca, PM 15
Registration Division (TS-769-C)

Fenvalerate [Pydrin (RS)-α-cyano-3-phenoxybenzyul-(RS)-2-(4-chlorophenyl) isovalerate] is a pyrethroid insecticide that is used for control of a wide range of insects. It is currently conditionally registered on cotton, field corn, peanuts, soybeans, apples, peaches, pecans, filburts, cabbage, cauliflower, cucumbers, melons, pumpkins, beans, potatoes, and sweet corn. This pesticide has four optical isomers because of the presence of two asymmetric carbons, the most potent being the (2S-xS]-isomer. The registrant, Shell Oil Company, wishes to change the formulation of fenvalerate from a racemic mixture of four isomers to a single SS isomer (ASANA). They also propose to use the new formulation in the aquatic mesocosm (required by EEB, 1985) instead of the racemic formulation (Pydrin) and contend that there is no difference in the fate of the two formulations.

Studies indicate that the SS isomer degrades (in the laboratory) at approximately the same rate as the mixture. The aerobic-soil metabolism study (reviewed by Exposure Assessment Branch, 2-4-86) found that the SS isomer degraded with a half-life of 75 days, and the SS isomer in the racemic mixture degraded with a half-life of 95 days under similar conditions in silt loam soil. However, the Exposure Assessment Branch (EAB)contends that in another study (reviewed by EAB 9-28-81) the racemic mixture degraded with a half-life of 65 days in sandy loam soil and in loam soil the half-life was 8 months.

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Most of the data received to date indicate that there may be no significant difference in the fate of the single isomer and the racemic mixture. However, the registrant must still complete the EAB required dissipation study and present an analysis of all data to show no significant difference. According to EAB (2-4-86) "... the registrant must submit a technical presentation of their data to illustrate the validity of the statement, 'there is no difference in the environmental fate of the racemic mixture and the single SS ismomer.'"

Data submitted to the Ecological Effects Branch (EEB), pertaining to acute fish toxicity of Pydrin and ASANA, were reviewed. The bioassays indicate that the racemic mixture (LC_{50} = .70 ug/l) and the SS isomer (LC_{50} = .26 ug/l) are in the same toxicity range and suggest a very high toxicity to fish. EEB will agree to Shell's substitution of ASANA in place of Pydrin for the remaining fenvalerate data requirements (ie. aquatic field study). The established due dates for Pydrin testing will be binding for ASANA. No change in due dates will be allowed.

Miachel Rexrode

Miachel Rexrode, Fisheries Biologist
Ecological Effect Branch
Hazard Evaluation Division (TS-769-C)

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