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[illegible] 10-31/75 [illegible] [illegible]

[illegible] NO. ______

[illegible] OR E. P. [illegible] NO. (1016-78)

[illegible] RECEIVED 1016-EUP (6G1689/6H5008)

[illegible] ______

[illegible] October 10, 1975

[illegible]: E, D, H, P, M, R, S

[illegible] NO. (--)

[illegible] NAME(S) N/A

[illegible] NAME Temik 15G

[illegible] Union Carbide Corporation

[illegible] & [illegible] EUP

Aldicarb 2-methyl-2-(methylthio)
propionaidehyde o-(methylcarbamoyl)
oxime 15% granular

Environmental Safety Review

100.0 Pesticidal Use

Adding oranges to current label, for the control of certain insects, mites and nematodes.

100.1 Application methods/directions and rates

Oranges

1. Amount

   Dosages of TEMIK 15G Aldicarg Pesticide required for insect and mite control range from 33 to 67 pounds per acre and 67 pounds per acre for nematode control. Granules are applied according to the label "Directions for Experimental Use" on page B7.

2. Frequency and Time of Application

   One treatment* will be made from mid-March to mid-April in Arizona, California and Florida and from mid-January to mid-February in Texas.

3. Label

   The label for TEMIK 15G Aldicarb Pesticide (EPA Reg. No. 1016-78) for the TEMIK 15G fifty-pound carton to be used in this experimental program and the label for the 2 x 25 pound bags packaged in this carton are included on pages B2 to B6 of this section. These are one-fourth the actual package size. The "Directions For Experimental Use" of TEMIK 15G on oranges are presented on page B7. Upon approval, the entire label, pages B2 to B7, will be mailed to the participants involved in the proposed experimental program and listed in SECTION G of the "Application For An Experimental Use Permit To Ship TEMIK 15G Aldicarb Pesticide (EPA Reg. No. 1016-78) For Experimental Purposes on Oranges. Union Carbide Corporation. October, 1975".

Recommended Application Methods

Arizona, California, Florida, Texas

1) Apply granules in a 3-4 foot wide continuous band at outer edge of dripline on two sides of tree row. Incorporate 2-3 inches into soil. Follow immediately with 2-3 inches of irrigation.

* NOTE: Only one application per year.

100.1 Application methods/directions and rates (Continued)

2) Drill granules 3 inches deep into soil with fertilizer or grain drill shanks spaced 12"-14" apart to cover a 4-6 foot wide band at outer edge of dripline. Apply to two sides of tree row. Follow immediately with 2-3 inches of irrigation.

California (only)

1) Inject granules 2-3 inches deep into the bottom of water furrows between tree rows. Use two shanks per furrow. Follow immediately with 2-3 inches of irrigation.

101.0 Chemical and physical properties

101.1 Chemical name

2-methyl -2-(methylthio)propionaldehyde O-(methylcarbamoyl)oxime

101.2 Common name

Aldicarb

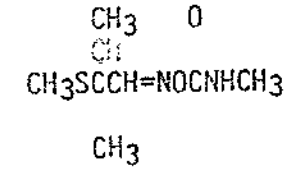
Other names

TEMIK (registered trademark of Union Carbide Corporation for aldicarb pesticide)
TEMIK 15G Aldicarb Pesticide
TEMIK 10G Aldicarb Pesticide
UC 21149
ENT 27093
OMS 771

Empirical formula

$C_7H_{14}N_2O_2S$

101.3 Structural formula



101.4 Molecular weight

190.3

101.5 These are properties of the purified chemical which is available as an analytical standard only. Aldicarb is not sold in this form.

Form: crystalline solid

Color: white

Odor: slightly sulfurous

Melting Point: 98-100°C

Boiling Point: decomposes above 100°C

101.6 Solubility

Solvent	Percent Solubility at 10°	30°	50°C
Acetone	28	43	67
Benzene	9	24	49
Carbon tetrachloride	2	5	25
Chloroform	38	44	53
Methylisobutyl ketone	13	24	42
Toluene	10	12	33
Water	0.4	0.9	1.4

Stability

Aldicarb is a heat-sensitive, inherently unstable chemical and must be stabilized if a practical shelf-life is to be expected.

[redacted]

Formulation to be Tested

The formulation to be tested is TEMIK 15G Aldicarb Pesticide, a 15 percent active, granulated product.

[redacted]

MANUFACTURING PROCESS AND INERT INGREDIENT INFORMATION ARE NOT INCLUDED

102.0 Behavior in the Environment

No data available for review - referenced several studies.

103.0 Toxicological Properties

No data readily available for review. All studies referenced. Data exists in the Environmental Safety review staffs' toxicity files to support registration, with the exception of the aquatic invertebrate study specified in the Section III regulations. However, actual data or summaries of itemized studies must accompany submissions for evaluation and reviews to be initiated.

104.0 Hazard Assessment

104.1 Discussion

Temik is an extremely toxic agricultural pest control tool which has proven to be hazardous to wildlife under actual field conditions, and for which special precautionary statements have been established. The applications proposed in this EUP are strictly soil incorporation methods which call for 2-3 inches of irrigation to immediately follow the treatment. Soil injection (shank and drill methods) and incorporation (2-3 inches deep) effectively help to minimize exposure and hazard to non-target species. The proposed use on oranges does not represent a significant new use/hazard in perspective to other currently registered uses, as such the environmental safety review staff finds no objections to the EUP.

104.1.1 Adequacy of toxicity data

The data accessible to the environmental safety review staff is sufficient to evaluate the proposed EUP. However, data referenced by the registrant is not readily available for review. All environmental safety and environmental chemistry data referenced should be located and made available for review and evaluation. If summaries are available for applicable studies, the registrant should submit them. Prior to registration, summaries and/or the data itself must be made available for review. Note that the aquatic invertebrate LC_{50} study is required by the Section III regulations.

104.1.2 Additional data required

Refer to 104.1.1 or to the Section III regulations.

104.1.3 Likelihood of exposure to non-target organisms

Application is soil injection/incorporation to 2-3 inches, followed by 2-3 inches of irrigation.

104.1.4 Hazard potential to endangered species

None expected, due to crop culture and application methods.

105.0 Conclusions

The Environmental Safety review staff finds no objections to the proposed experimental use permit for Aldicarb in oranges. However, the data necessary to support registration and/or the permit has been referenced and is not readily available for review. A completeness review cannot be performed, and as such, it is uncertain whether or not all data requirements have been satisfied. Note that the Section III regulations require an aquatic invertebrate LC_{50} study prior to full registration in addition to other basic studies. We suggest that the registrant submit summaries of itemized studies for those referenced in support of registration. Studies should be properly identified, the date of submission provided, in addition to its exact location (i.e. petition #, section, etc.) and by whom it was conducted. Summaries of all data/studies should be submitted.

105.1 Environmental precautions

The caution "Keep out of any body of water" should be modified to read: "Keep out of lakes, streams and ponds."

Under the section "Directions for use and recommended applications": modify the statement: "Granules should be worked ...." to read: Granules must be worked ...

This statement must be added to the EUP label after the reading: "Directions for experimental Use." The normal precautions for aldicarb are applicable for the EUP label.

Scott C. Fredericks

Scott C. Fredericks 11-24-75
Environmental Safety
EEEB