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OFFICE OF
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MEMORANDUM

September 16, 2002

SUBJECT: **BAS 510 F:** Tier I Drinking Water EECs for Use in the Human Health Risk Assessment.

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RAB2/HED (7509C)

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This memo summarizes the Tier I estimated environmental concentrations (EECs) for BAS 510 F in surface water and in groundwater for use in the human health risk assessments. The EECs are summarized in Table 1. EFED used the simulation model FIRST to calculate the surface water EECs and used the simulation model SCI-GROW to calculate the groundwater EEC. Because BAS 510 F is a new chemical, monitoring data were not available.

For the surface water and groundwater assessments, the application rate for turf was used, which represents the highest seasonal application rate (i.e., 2.1 lb a.i./A/season or 0.350 lb a.i./A/application applied six times at 14-day intervals) on the proposed labels. A summary of the model input parameter values used in FIRST is presented in Table 2. The FIRST output file is located in Attachment 1. A summary of the model input parameter values used in SCI-GROW is presented in Table 3. The SCI-GROW output file is located in Attachment 2. It is noted that the highest single application rate (0.547 lb a.i./A), associated with the use of the pesticide on fruiting vegetables, did not result in EEC values higher than those reported below (since the proposed total seasonal application rate for fruiting vegetables is only 1.1 lb a.i./A/season). It is also noted that the application rates utilized in modeling were obtained from the label designated "Option A."

In response to concerns raised by the MARC committee, an attempt was made to assess the potential for two possible degradates, 2-(4-chlorophenyl)aniline and 2-chloro pyridine, to reach drinking water sources. No data were submitted by the registrant on the mobility or persistence of either of the two compounds. However, it is noted that the degradates were not isolated in any of the submitted laboratory or field studies. The possible degradate 2-(4-chlorophenyl)aniline was monitored in an aerobic soil metabolism study and was not detected in

any of the samples. The possible degradate 2-chloro pyridine, which could form from the degradation of 2-chloronicotinic acid, was not monitored specifically in the studies. However, the acceptable material balances in the laboratory metabolism studies indicated that if the degradate was present in the unidentified fraction, it was not present in significant quantities. It is likely that if the compound was formed, it was present in the soil samples as a bound residue. The registrant submitted additional information, in the form of published literature, on the transformation of chlorinated pyridines. Based on the published literature and the results of laboratory studies, the registrant concluded that the metabolic products of 2-chloronicotinic acid were carbon dioxide and bound residues.

Table 1. Tier I EECs for drinking water risk assessment based on BAS 510 F use on turf.

Surface water drinking water sources	acute: 87.0 ug/L (ppb) chronic: 25.6 ug/L
Groundwater drinking water sources	0.571 ug/L (ppb) or 571 ng/L (parts per trillion)

Table 2. FIRST (v1.0) input parameter values and results for BAS 510 F applied to turf by ground spray.

Parameter	Value
Application Rate (lb a.i./A)	0.350
Number of Applications	6
Interval between Applications (days)	14
Organic Carbon Partitioning Coefficient (K_{oc}; mL/g)	655[1]
Aerobic Soil Metabolism Half-life (days)	365[2]
Wetted in?	No
Depth of Incorporation (inches)	0
Method of Application	ground spray
Percent Cropped Area	0.87
Solubility in Water (mg/L or ppm)	6
Aerobic Aquatic Metabolism Half-life (days)	stable
Hydrolysis Half-life @ pH 7 (days)	stable
Aquatic Photolysis Half-life @ pH 7 (days)	stable
FIRST Results (EEC for surface water drinking water sources)	**Acute Concentration (ppb): 87.0** **Chronic Concentration (ppb): 25.6**

[1]Represents the lowest K_{oc} for a non-sand soil. [2]The aerobic soil metabolism half-life used in the models represents the 90th percentile of the upper confidence bound on the mean half-life for four soils.

Table 3. SCI-GROW2 input parameter values and results for BAS 510 F applied to turf.

Parameter	Value
Maximum Application Rate (lb a.i./A)	0.350
Maximum Number of Applications per Year	6
Aerobic Soil Metabolism Half-life (days)	348.5[1]
Organic Carbon Partitioning Coefficient (K_{oc})	821[2]
Results (EEC for groundwater drinking water sources)	0.5708 µg/L (ppb) or 571ng/L (parts per trillion)

[1]Represents the median value of four aerobic soil metabolism half-lives reported in the submitted guideline studies. [2]Represents the median K_{oc} for two soils (calculated as an average of the two).

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ATTACHMENT 1: FIRST File

RUN No. 1 FOR BAS510F ON turf * INPUT VALUES *

RATE (#/AC) ONE(MULT)	No.APPS & INTERVAL	SOIL Koc	SOLUBIL (PPM)	APPL TYPE (%DRIFT)	%CROPPED AREA	INCORP (IN)
.350(1.967)	6 14	655.0	6.0	GROUND(6.4)	87.0	.0

FIELD AND RESERVOIR HALFLIFE VALUES (DAYS)

METABOLIC (FIELD)	DAYS UNTIL RAIN/RUNOFF	HYDROLYSIS (RESERVOIR)	PHOTOLYSIS (RES.-EFF)	METABOLIC (RESER.)	COMBINED (RESER.)
365.00	2	N/A	.00- .00	.00	.00

UNTREATED WATER CONC (MICROGRAMS/LITER (PPB)) Ver 1.0 AUG 1, 2001

PEAK DAY (ACUTE) CONCENTRATION	ANNUAL AVERAGE (CHRONIC) CONCENTRATION
87.025	25.625

ATTACHMENT 2: SCI-GROW File

RUN No. 1 FOR BAS510F INPUT VALUES

APPL (#/AC) RATE	APPL. NO.	URATE (#/AC/YR)	SOIL KOC	SOIL AEROBIC METABOLISM (DAYS)
.350	6	2.100	821.0	348.5

GROUND-WATER SCREENING CONCENTRATIONS IN PPB

.570899

A= 343.500 B= 826.000 C= 2.536 D= 2.917 RILP= 2.746
F= -.566 G= .272 URATE= 2.100 GWSC= .570899