

PM50



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

NOV 3 1987

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

Subject: Addendum to Residue Chemistry Chapter for Phosphamidon
Registration Standard: Tolerance Assessment System
Tolerance Reassessment.

To: Amy Rispin, Ph.D.
Science Integration Staff
Hazard Evaluation Division
and
William Miller, PM# 16
Registration Division

From: Charles Frick *e. Frick 10/28/87*
Tolerance Assessment Program
Residue Chemistry Branch, HED

Thru: Stephen Saunders, Ph.D. *SS 10/29/87*
Program Manager, TAS
Residue Chemistry Branch

Please find attached the Tolerance Assessment System (TAS) tolerance reassessment for Phosphamidon, which is in compliance with the policy established in HED that TAS will be used for all Registration Standards, Special Reviews, and tolerances on new chemicals.

1
196

CHEMICAL: PHOSPHAMIDON

Discussion

1. the Provisional Acceptable Daily Intake (PADI) for this chemical is 0.0002 mg/kg/day, and has been approved by the Toxicology Branch Reference Dose Committee, 7/31/87.
2. The food uses evaluated by the Tolerance Assessment System (TAS) were published tolerances as established under 40 CFR 180.239 and the published tolerance values factored by the percent of crop treated.
3. The TAS Routine Chronic Analysis estimates dietary exposure for the U.S. population average and for each of 22 subgroups. The TAS analysis using the published tolerance values estimated the TMRC for the U.S. population as 0.004353 mg/kg/day, which is equivalent to 2176% of the PADI. The two most highly exposed subgroups were non-nursing infants less than one year of age (0.01306 mg/kg/day, 6530% of the PADI) and children 1-6 years of age (0.011018 mg/kg/day, 5509% of the PADI). While tolerance values generally provide a conservative (high) estimate of residues, it should be noted that the Registration Standard requires data to support tolerances on many RAC's.
4. The TAS analysis using published tolerance values factored by percent of crop treated, estimated for the U.S. population an Anticipated Residue Contribution (ARC) of 0.000208 mg/kg/day, which is equivalent to 104% of the PADI. Again the two most highly exposed subgroups were non-nursing infants less than one year of age (0.000720 mg/kg/day, 360% of the PADI) and children 1-6 years of age (0.000531 mg/kg/day, 265% of the PADI). The Registration Standard has requested processing studies; The Registration Standard Team should consider whether additional processing studies or cooking studies are required to refine estimates of dietary exposure.
5. Processing data (washing, cooking, etc.) have not been incorporated into this analysis- see memo. to K. Arne from W. Hazel, (9/8/87) which states in part, "...and that processing studies are not available for any commodity that are adequate for purposes of tolerance support and reregistration."
6. Because the No Effect Level (NOEL) for this chemical is based on the inhibition of serum and brain ChE activity, and the estimated exposure greatly exceeds the PADI for some subgroups, The TAS program has some concern over the possibility for the occurrence of acute toxicity. It must be noted that the RCB is asking for additional residue data to support the existing tolerances (see RCB chapter this Registration Standard) and the Toxicology Branch has requested additional data to support the 1.0ppm NOEL (Caswell File #661) The TAS Program is currently

conducting an acute analysis of these subgroups and the high consumption food items with Phosphamidon tolerances.

*The Quantitative Usage Analysis (PQUA) for the Phosphamidon Registration Standard was submitted to the TAS program via memorandum from Ed Weiler, Economist, Economic Analysis Branch, BUD, 10/2/86.

ATTACHMENT

cc. Registration Standard File
Reading File
Circ.
TAS File
C. Frick (RCB)
K. Locke (TOX)
Toxicology Branch
PMSD

TOLERANCE ASSESSMENT SYSTEM ROUTINE CHRONIC ANALYSIS

DATE: 10/15/87

PAGE: 1

CHEMICAL INFORMATION	STUDY TYPE	EFFECTS	REFERENCE DOSES	DATA GAPS/COMMENTS	STATUS
Phosphamidon Caswell #661 CAS No. 13171-21-6 A.I. CODE: 018201 CFR No. 180.239	2yr feeding - rat MOEL= 0.0500 mg/kg 1.00 ppm LEL= 1.5000 mg/kg 30.00 ppm OMCO: Pending NOTE.	Inhibition of serum and brain CHE activity, degeneration/necrosis of hepatocytes. Evidence of oncogenicity in rats (bladder), no mouse data.	PADI 300 OPP RfD= 0.000200 EPA RfD= 0.000000 WHO RfD 0.000500 Type: ADI	Chronic feeding - dog Mouse oncogenicity Extra UF of 3 used due to lack of firm NOEL for brain CHE in rat, lack of dog study.	TOX complete 7/31/87. ORD not scheduled. WHO last reviewed 1986.

POPULATION SUBGROUP	TOTAL THRC (MG/KG BODY WEIGHT/DAY)		NEW THRC AS PERCENT OF RFD	DIFFERENCE AS PERCENT OF RFD	EFFECT OF ANTICIPATED RESIDUES (MG/KG/DAY)	XRFD
	CURRENT THRC*	NEW THRC**				
U.S. POPULATION - 48 STATES	0.004353	0.004353	2176.492000	0.000000	0.000208	104.165000
U.S. POPULATION - SPRING SEASON	0.004142	0.004142	2071.108500	0.000000	0.000194	96.896500
U.S. POPULATION - SUMMER SEASON	0.004172	0.004172	2085.920000	0.000000	0.000213	106.250500
U.S. POPULATION - FALL SEASON	0.004504	0.004504	2251.901000	0.000000	0.000215	107.413500
U.S. POPULATION - WINTER SEASON	0.004582	0.004582	2290.808500	0.000000	0.000212	106.146500
NORTHEAST REGION	0.005119	0.005119	2559.617000	0.000000	0.000223	111.492000
NORTH CENTRAL REGION	0.004330	0.004330	2164.801500	0.000000	0.000208	103.830000
SOUTHERN REGION	0.003613	0.003613	1806.416500	0.000000	0.000186	93.121500
WESTERN REGION	0.004620	0.004620	2309.846500	0.000000	0.000228	113.953500
HISPANICS	0.005330	0.005330	2665.143000	0.000000	0.000208	104.156500
NON-HISPANIC WHITES	0.004367	0.004367	2183.326500	0.000000	0.000214	106.828000
NON-HISPANIC BLACKS	0.003692	0.003692	1845.755500	0.000000	0.000175	86.394000
NON-HISPANICS OTHER:	0.005110	0.005110	2555.170000	0.000000	0.000219	109.405000
NURSING INFANTS (<1 YEAR OLD)	0.008090	0.008090	4044.991000	0.000000	0.000472	235.931000
NON-NURSING INFANTS (<1 YEAR OLD)	0.013060	0.013060	6530.221500	0.000000	0.000720	360.077000
FEMALES (13+ YEARS, PREGNANT)	0.003518	0.003518	1759.129000	0.000000	0.000152	76.140000
FEMALES 13+ YEARS, NURSING CHILDREN (1-6 YEARS OLD)	0.003637	0.003637	1818.378500	0.000000	0.000172	86.127500
CHILDREN (7-12 YEARS OLD)	0.011018	0.011018	5509.180000	0.000000	0.000531	265.570000
MALES (13-19 YEARS OLD)	0.006404	0.006404	3201.769500	0.000000	0.000318	158.911500
FEMALES (13-19 YEARS OLD, NOT PREG. OR NURSING)	0.003878	0.003878	1939.132500	0.000000	0.000191	95.459000
MALES (20 YEARS AND OLDER)	0.003538	0.003538	1769.213000	0.000000	0.000178	88.929500
FEMALES (20 YEARS AND OLDER)	0.002817	0.002817	1408.467000	0.000000	0.000135	67.420000
FEMALES (20 YEARS AND OLDER)	0.003135	0.003135	1567.643000	0.000000	0.000140	70.155500

*Current THRC does not include new or pending tolerances.
**New THRC includes new, pending, and published tolerances.

ANTICIPATED RESIDUE INFORMATION FOR CASWELL NUMBER 661

DATE: 10/15/87

PAGE: 1

CHEMICAL	STUDY TYPE	EFFECTS	REFERENCE DOSES	DATA GAPS/COMMENTS	STATUS
Phosphamidon Caswell #661 CAS No. 13171-21-6 A.I. CODE: 018201 CFR No. 180.239	2yr feeding- rat MOEL= 0.0500 mg/kg 1.00 ppm LEL= 1.5000 mg/kg 30.00 ppm OMCO: Pending NOTE.	Inhibition of serum and brain ChE activity, degeneration/necrosis of hepatocytes. Evidence of oncogenicity in rats (bladder), no mouse data.	PADI 300 OPP Rfd= 0.000200 EPA Rfd= 0.000000 WHO Rfd 0.000500 Type: AD1	Chronic feeding- dog Mouse oncogenicity Extra UF of 3 used due to lack of firm MOEL for brain ChE in rat, lack of dog study.	TOX complete 7/31/87. ORD not scheduled. WHO last reviewed 1986.

FOOD CODE	FOOD	FOOD FORM	PET.#	TOLERANCE (ppm)	ANTICIPATED RESIDUE (ppm)	AR TYPE	% CROP TREATED	RES. VALUE USED IN TAS RUN (ppm)
02002AA	GRAPEFRUIT-UNSP	00 NOT SPECIFIED (NO CONSUMPTION)						
02002AB	GRAPEFRUIT-PULP	10 RAW-FRESH OR NFS	7F0546	0.750000	0.750000		1.00	0.007500
02002AB	GRAPEFRUIT-PULP	21 COOKED-NFS	7F0546	0.750000	0.750000		1.00	0.007500
02002JA	GRAPEFRUIT-JUICE	15 RAW-FRESH OR CANNED	7F0546	0.750000	0.750000		1.00	0.007500
02002JA	GRAPEFRUIT-JUICE	31 COOKED-FRESH OR CANNED	7F0546	0.750000	0.750000		1.00	0.007500
02004AA	LEMONS-UNSPEC	10 RAW-FRESH OR NFS	7F0546	0.750000	0.750000		1.00	0.007500
02004AA	LEMONS-UNSPEC	22 COOKED-FRESH-BAKED	7F0546	0.750000	0.750000		1.00	0.007500
02004AB	LEMONS-PULP	10 RAW-FRESH OR NFS	7F0546	0.750000	0.750000		1.00	0.007500
02004AB	LEMONS-PULP	31 COOKED-FRESH OR CANNED	7F0546	0.750000	0.750000		1.00	0.007500
02004AA	LEMONS-PEEL	10 RAW-FRESH OR NFS	7F0546	0.750000	0.750000		1.00	0.008250
02004AA	LEMONS-PEEL	21 COOKED-NFS	7F0546	0.750000	0.750000		1.00	0.007500
02004JA	LEMONS-JUICE	10 RAW-FRESH OR NFS	7F0546	0.750000	0.750000		1.00	0.007500
02004JA	LEMONS-JUICE	15 RAW-FRESH OR CANNED	7F0546	0.750000	0.750000		1.00	0.007500
02004JA	LEMONS-JUICE	21 COOKED-NFS	7F0546	0.750000	0.750000		1.00	0.007500
02004JA	LEMONS-JUICE	31 COOKED-FRESH OR CANNED	7F0546	0.750000	0.750000		1.00	0.007500
02006AA	ORANGES-UNSPEC	00 NOT SPECIFIED (NO CONSUMPTION)						
02006AB	ORANGES-PULP	10 RAW-FRESH OR NFS	7F0546	0.750000	0.750000		1.00	0.007500
02006AB	ORANGES-PULP	21 COOKED-NFS	7F0546	0.750000	0.750000		1.00	0.007500
02006AA	ORANGES-PEEL	21 COOKED-NFS	7F0546	0.750000	0.750000		1.00	0.007500
02006AA	ORANGES-PEEL	22 COOKED-FRESH-BAKED	7F0546	0.750000	0.750000		1.00	0.007500
02006AA	ORANGES-PEEL	31 COOKED-FRESH OR CANNED	7F0546	0.750000	0.750000		1.00	0.007500
02006JA	ORANGES-JUICE	15 RAW-FRESH OR CANNED	7F0546	0.750000	0.750000		1.00	0.007500
02006JA	ORANGES-JUICE	31 COOKED-FRESH OR CANNED	7F0546	0.750000	0.750000		1.00	0.007500
02008JA	TANGERINES	10 RAW-FRESH OR NFS	7F0546	0.750000	0.750000		1.00	0.007500
02008JA	TANGERINES	15 RAW-FRESH OR CANNED	7F0546	0.750000	0.750000		1.00	0.007500
03009AA	WALNUTS	10 RAW-FRESH OR NFS	7F0546	0.100000	0.100000		4.00	0.004000
03009AA	WALNUTS	21 COOKED-NFS	7F0546	0.100000	0.100000		4.00	0.004000
03009AA	WALNUTS	22 COOKED-FRESH-BAKED	7F0546	0.100000	0.100000		4.00	0.004000
04001AA	APPLES-FRESH	10 RAW-FRESH OR NFS	7F0546	1.000000	1.000000		7.00	0.070000
04001AA	APPLES-FRESH	21 COOKED-NFS	7F0546	1.000000	1.000000		7.00	0.070000
04001AA	APPLES-FRESH	31 COOKED-FRESH OR CANNED	7F0546	1.000000	1.000000		7.00	0.070000
04001AA	APPLES-FRESH	62 COOKED-FRESH OR FROZEN-BAKED	7F0546	1.000000	1.000000		7.00	0.070000
04001DA	APPLES-DRIED	10 RAW-FRESH OR NFS	7F0546	1.000000	1.000000		7.00	0.070000
04001DA	APPLES-DRIED	22 COOKED-FRESH-BAKED	7F0546	1.000000	1.000000		7.00	0.070000
04001DA	APPLES-DRIED	62 COOKED-FRESH OR FROZEN-BAKED	7F0546	1.000000	1.000000		7.00	0.070000
04001JA	APPLES-JUICE	15 RAW-FRESH OR CANNED	7F0546	1.000000	1.000000		7.00	0.070000
04001JA	APPLES-JUICE	31 COOKED-FRESH OR CANNED	7F0546	1.000000	1.000000		7.00	0.070000
08040DA	PAPRIKA	00 NOT SPECIFIED (NO CONSUMPTION)						
10002AA	CANTALOUPE-UNSP	00 NOT SPECIFIED (NO CONSUMPTION)						
10002AA	CANTALOUPE-UNSP	10 RAW-FRESH OR NFS	7F0546	0.250000	0.250000		100.00	0.250000
10002AB	CANTALOUPE-PULP	10 RAW-FRESH OR NFS	7F0546	0.250000	0.250000		100.00	0.250000

[Handwritten signature]

ANTICIPATED RESIDUE INFORMATION FOR CASWELL NUMBER 661

DATE: 10/15/87

PAGE: 2

CHEMICAL	STUDY TYPE	EFFECTS	REFERENCE DOSES	DATA GAPS/COMMENTS	STATUS
Phosphamidon Caswell #661 CAS No. 13171-21-6 A.I. CODE: 018201 CFR No. 180.239	2yr feeding - rat MOEL = 0.0500 mg/kg 1.00 ppm LET = 1.5000 mg/kg 30.00 ppm ONCO: Pending NOTE.	Inhibition of serum and brain CHE activity, degeneration/necrosis of hepatocytes. Evidence of oncogenicity in rats (bladder), no mouse data.	PADI 300 OPP RfD = 0.000200 EPA RfD = 0.000000 WHO RfD 0.000500 Type: ADI	Chronic feeding - dog Mouse oncogenicity Extra UF of 3 used due to lack of firm NOEL for brain CHE in rat, lack of dog study.	TOX complete 7/31/87. ORD not scheduled. WHO last reviewed 1986.

FOOD CODE	FOOD	FOOD FORM	PET.#	TOLERANCE (ppm)	ANTICIPATED RESIDUE (ppm)	AR TYPE	% CROP TREATED	RES. VALUE USED IN TAs RUN (ppm)
10002AB	CANTALOUPE-PULP	21 COOKED-NFS	7F0546	0.250000	0.250000		100.00	0.250000
10008AA	WATERMELON	10 RAW-FRESH OR NFS	7F0546	0.250000	0.250000		1.00	0.002500
10008AA	WATERMELON	21 COOKED-NFS	7F0546	0.250000	0.250000		1.00	0.002500
10010AA	CUCUMBERS	10 RAW-FRESH OR NFS	7F0546	0.500000	0.500000		1.00	0.005000
10010AA	CUCUMBERS	11 RAW-FRESH-PICKLED, CANNED, OR CURED	7F0546	0.500000	0.500000		1.00	0.005000
10010AA	CUCUMBERS	21 COOKED-NFS	7F0546	0.500000	0.500000		1.00	0.005000
11003AA	PEPPERS, SHEET	10 RAW-FRESH OR NFS	7F0546	0.500000	0.500000		1.00	0.005000
11003AA	PEPPERS, SHEET	21 COOKED-NFS	7F0546	0.500000	0.500000		1.00	0.005000
11003AB	CHILI PEPPERS	00 NOT SPECIFIED (NO CONSUMPTION)	7F0546	0.500000	0.500000		1.00	0.005000
11003AD	PEPPERS-OTHER	10 RAW-FRESH OR NFS	7F0546	0.500000	0.500000		1.00	0.005000
11003AD	PEPPERS-OTHER	21 COOKED-NFS	7F0546	0.500000	0.500000		1.00	0.005000
11003AD	PEPPERS-OTHER	51 COOKED-CANNED	7F0546	0.500000	0.500000		1.00	0.005000
11004AA	PINIENTOS	10 RAW-FRESH OR NFS	7F0546	0.500000	0.500000		100.00	0.500000
11004AA	PINIENTOS	21 COOKED-NFS	7F0546	0.500000	0.500000		100.00	0.500000
11005AA	PINIENTOS	31 COOKED-FRESH OR CANNED	7F0546	1.000000	1.000000		2.50	0.025000
11005AA	TOMATOES-WHOLE	10 RAW-FRESH OR NFS	7F0546	1.000000	1.000000		2.50	0.025000
11005AA	TOMATOES-WHOLE	21 COOKED-NFS	7F0546	1.000000	1.000000		2.50	0.025000
11005AA	TOMATOES-WHOLE	31 COOKED-FRESH OR CANNED	7F0546	1.000000	1.000000		2.50	0.025000
11005JA	TOMATOES-WHOLE	10 RAW-FRESH OR NFS	7F0546	1.000000	1.000000		2.50	0.025000
11005JA	TOMATOES-WHOLE	21 COOKED-NFS	7F0546	1.000000	1.000000		2.50	0.025000
11005RA	TOMATOES-PUREE	10 RAW-FRESH OR NFS	7F0546	1.000000	1.000000		2.50	0.025000
11005RA	TOMATOES-PUREE	21 COOKED-NFS	7F0546	1.000000	1.000000		2.50	0.025000
11005RA	TOMATOES-PUREE	31 COOKED-FRESH OR CANNED	7F0546	1.000000	1.000000		2.50	0.025000
11005RA	TOMATOES-PUREE	32 COOKED-FRESH OR CANNED	7F0546	1.000000	1.000000		2.50	0.025000
11005RA	TOMATOES-PUREE	51 COOKED-CANNED	7F0546	1.000000	1.000000		2.50	0.025000
11005TA	TOMATOES-PASTE	21 COOKED-NFS	7F0546	1.000000	1.000000		2.50	0.025000
11005TA	TOMATOES-PASTE	22 COOKED-FRESH-BAKED	7F0546	1.000000	1.000000		2.50	0.025000
11005TA	TOMATOES-PASTE	31 COOKED-FRESH OR CANNED	7F0546	1.000000	1.000000		2.50	0.025000
11005UA	TOMATOES-CATSUP	21 COOKED-NFS	7F0546	1.000000	1.000000		2.50	0.025000
13005AA	BROCCOLI	21 COOKED-NFS	7F0546	0.500000	0.500000		2.50	0.012500
13005AA	BROCCOLI	31 COOKED-FRESH OR CANNED	7F0546	0.500000	0.500000		2.50	0.012500
13008AA	CALIFLOWER	63 COOKED-FRESH OR FROZEN-BOILED	7F0546	0.500000	0.500000		2.50	0.012500
13008AA	CALIFLOWER	10 RAW-FRESH OR NFS	7F0546	0.500000	0.500000		6.00	0.030000
13008AA	CALIFLOWER	21 COOKED-NFS	7F0546	0.500000	0.500000		6.00	0.030000
14013AA	POTATO(UH)-WHOLE	10 RAW-FRESH OR NFS	0F0974	0.100000	0.100000		3.00	0.003000
14013AA	POTATO(UH)-WHOLE	22 COOKED-FRESH-BAKED	0F0974	0.100000	0.100000		3.00	0.003000
14013AA	POTATO(UH)-WHOLE	22 COOKED-FRESH-BAKED	0F0974	0.100000	0.100000		3.00	0.003000
14013AB	POTATO(UH)-UNSP	22 COOKED-FRESH-BAKED	0F0974	0.100000	0.100000		3.00	0.003000
14013AC	POTATO(UH)-PULP	21 COOKED-NFS	0F0974	0.100000	0.100000		3.00	0.003000
14013AC	POTATO(UH)-PULP	22 COOKED-FRESH-BAKED	0F0974	0.100000	0.100000		3.00	0.003000

9

ANTICIPATED RESIDUE INFORMATION FOR CASWELL NUMBER 661

DATE: 10/15/87

PAGE: 3

CHEMICAL	STUDY TYPE	EFFECTS	REFERENCE DOSES	DATA GAPS/COMMENTS	STATUS
Phosphamidon Caswell #661 CAS No. 13171-21-6 A.I. CODE: 018201 CFR No. 180.239	Zyr feeding- rat MOEL= 0.0500 mg/kg LEI= 1.5000 mg/kg 30.00 ppm ONCO: Pending VOTE.	Inhibition of serum and brain CHE activity, de- generation/necrosis of hepatocytes. Evidence of oncogenicity in rats (bladder), no mouse data.	PADI 300 OPP RfD= 0.000200 EPA RfD= 0.000000 WHO RfD 0.000500 Type: ADI	Chronic feeding- dog Mouse oncogenicity Extra UF of 3 used due to lack of firm MOEL for brain CHE in rat, lack of dog study.	TOX complete 7/31/87. ORD not scheduled. WHO last reviewed 1986.

FOOD CODE	FOOD	FOOD FORM	PET. #	TOLERANCE (ppm)	ANTICIPATED RESIDUE (ppm)	AR TYPE	% CROP TREATED	RES. VALUE USED IN TAs RUM (ppm)
14013AC	POTATO(UH)-PULP	23 COOKED-FRESH-BOILED	OF0974	0.100000	0.100000		3.00	0.003000
14013AC	POTATO(UH)-PULP	25 COOKED-FRESH-FRIED	OF0974	0.100000	0.100000		3.00	0.003000
14013DA	POTATO(UH)-DRY	10 RAW-FRESH OR NFS	OF0974	0.100000	0.100000		3.00	0.003000
14013DA	POTATO(UH)-DRY	31 COOKED-FRESH OR CANNED	OF0974	0.100000	0.100000		3.00	0.003000
14013MA	POTATO(UH)-PEEL	22 COOKED-FRESH-BAKED	OF0974	0.100000	0.100000		100.00	0.100000
25003SA	CANE SUGAR	10 RAW-FRESH OR NFS	OF0974	0.100000	0.100000		100.00	0.100000
25003SA	CANE SUGAR	21 COOKED-NFS	OF0974	0.100000	0.100000		100.00	0.100000
25003SA	CANE SUGAR	22 COOKED-FRESH-BAKED	OF0974	0.100000	0.100000		100.00	0.100000
25003SA	CANE SUGAR	31 COOKED-FRESH OR CANNED	OF0974	0.100000	0.100000		100.00	0.100000
25003SB	SUGAR-MOLASSES	10 RAW-FRESH OR NFS	OF0974	0.100000	0.100000		100.00	0.100000
25003SB	SUGAR-MOLASSES	21 COOKED-NFS	OF0974	0.100000	0.100000		100.00	0.100000
25003SB	SUGAR-MOLASSES	22 COOKED-FRESH-BAKED	OF0974	0.100000	0.100000		100.00	0.100000
25003SB	SUGAR-MOLASSES	31 COOKED-FRESH OR CANNED	OF0974	0.100000	0.100000		100.00	0.100000
27003QA	COTTONSEED-OIL	18 PROCESSED OIL	OF0974	0.100000	0.100000		1.00	0.001000
27003QA	COTTONSEED-OIL	18 PROCESSED OIL	OF0974	0.100000	0.100000		1.00	0.001000