US EPA ARCHIVE DOCUMENT

PCT memo from BEAD (PQUA) for parathion is in white Exceeders binder

2/18/92

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

FEB 18 1992

OFFICE OF
PESTICIDES AND TOXIC
SUBSTANCES

MEMORANDUM

SUBJECT: RfD Exceeders Project: DRES Analyses Using Percent Crop Treated Data for Endosulfan, Methyl Parathion, Naled, and Parathion

FROM: Stephen A. Schaible
Dietary Exposure Section
SACB/HED (H7509C)

TO: Paul Parsons
Special Review Branch
Special Review and Reregistration Division (H7508W)

THROUGH: James F. Kariya
Chief, Dietary Exposure Section
Health Effects Division

As part of the RfD Exceeders Project, Dietary Exposure Section was requested to perform DRES chronic exposure analyses for endosulfan, methyl parathion, naled, and parathion, using updated percent crop treated information from BEAD (in the form of Preliminary Quantitative Usage Analyses (PQUAs) for each of these chemicals).

DRES Interpretation of Percent Crop Treated Information

In the PQUAs, when the percent of crop treated data was given in ranges, the DRES analysis used the upper bound to the range reported. Similarly, when the percent of site treated was reported in the PQUA as being less than "X" percent of the total crop, the value entered into the DRES analysis was "X" (e.g. "< 5%" in the PQUA was represented as "5%" in the DRES analysis). For some sites, there was not enough information available to BEAD to accurately estimate the percent of crop treated, and they reported the percent of crop treated as being "not available" (N.A.). In the absence of percent crop treated data, it was assumed in the DRES analysis that 100 percent of that crop was treated with the chemical, which for most crops would be an overestimate.

Since the PQUA for naled had entries of "N.A." for all commodities evaluated, it was assumed that 100 percent of all commodities in the data base were treated with naled. A DRES analysis had already been performed for naled using 100 percent crop treated in relation to the Exceeders Project; therefore, a second analysis was deemed unnecessary.

Printed on Recycled Paper

A short summary of the analysis for each chemical follows. The summary pages from the DRES analyses for endosulfan, methyl parathion, and parathion are attached as Tables 1, 2, and 3, respectively.

Endosulfan

The DRES analysis for endosulfan used an OPP Reference Dose (RfD) of 0.0005 mg/kg body weight/day, based on a lowest observed effect level (LEL) of 0.15 mg/kg bwt/day and an uncertainty factor of 300. The RfD was based on a two generation reproduction study in rats which demonstrated as an effect discoloration of kidney tubules. The RfD has been reviewed by the OPP RfD Peer Review Committee (9/7/90).

Food uses evaluated in this analysis were the published uses of endosulfan listed in 40 CFR 180.182. Percent crop treated information reported in a PQUA of endosulfan (G. Ali, 6/7/91) was used as well.

Using the refined percent crop treated information, the exposure to endosulfan for the overall U.S. population is decreased from 0.012105 mg/kg bwt/day, or 2421% of the RfD, to 0.006484 mg/kg bwt/day, or 1297% of the RfD. The exposure to the subgroup most highly exposed, non-nursing infants less than one year old, is decreased from 0.041880 mg/kg bwt/day (8376% of the RfD) to 0.019698 mg/kg bwt/day (3940% of the RfD). Since these exposure values are still in exceedance of the RfD, it is suggested that anticipated residue information be requested next.

Methyl Parathion

The DRES analysis for methyl parathion used a Reference Dose of 0.00025 mg/kg bwt/day, based on a no observed effect level (NOEL) of 0.025 mg/kg bwt/day and an uncertainty factor of 100. The RfD was taken from a two year feeding study in rats which for effects demonstrated decreased red blood cell cholinesterase and reduced hematocrit and hemoglobin. This RfD has been approved by the HED (10/10/86) and Agency (12/9/86) RfD committees.

Food uses evaluated were the published uses of methyl parathion as listed in 40 CFR 180.121. Percent crop treated information used was supplied by BEAD in a PQUA dated 10/18/91 (F. Hernandez memo to P. Parsons). In transferring this data to the DRES data base, several assumptions were made. The terms "green beans" and "green peas" in the PQUA were respectively matched to the DRES commodities "beans-succulent-green" and "peas-succulent-garden". In addition, the percent crop treated information for celery was also assumed to apply to fennel and the entry in the PQUA for "corn" was assumed to not include the DRES commodities "popcorn" or "corn, sweet". Secondary residues of methyl parathion in meat, milk, and poultry have not yet been characterized but would be expected to be low (personal communication with A. Rathman (CBRS), 2/12/92).

It should be noted that the proposed cancellation of the remaining nine uses of parathion would have a significant impact

on the use of methyl parathion, and was a factor included in estimating the percentage of crop treated (F. Hernandez, 10/18/91).

Using the updated percent crop treated information, the ARC for the overall U.S. population is 0.004431 mg/kg bwt/day, or 1772% of the RfD. By using percent crop treated estimates in the analysis instead of assuming 100 percent crop treated (as was done in the previous analysis on methyl parathion), the exposure was decreased from 0.010122 mg/kg bwt/day, or 4049% of the RfD. The subgroup most highly exposed, non-nursing infants less than one year old, has an exposure of 0.013354 (5341% of the RfD), decreasing from 0.028832 mg/kg bwt/day, or 11,533% of the RfD. The exposure values to methyl parathion using percent crop treated information still exceed the RfD, so pursuance of anticipated residue information is recommended.

Naled

The RfD for naled is 0.002 mg/kg bwt/day, based on a NOEL of 0.2 mg/kg bwt/day and an uncertainty factor of 100. The RfD was based on a two year feeding study in rats which demonstrated as effects inhibition of brain cholinesterase, and slight inhibition of red blood cell and plasma cholinesterase at the 10 mg/kg dose. This RfD has been approved by both HED (3/17/87) and Agency (4/15/87) RfD committees.

Because the PQUA for naled (K.F. Griffin, 1/8/91) offered no refinement in the percent of crop treated information that was used in the previous analysis of this chemical, no analysis was performed for the information in the PQUA. However, the exposure using tolerance level residues and 100 percent crop treated (assumptions from the previous run) to the overall U.S. population is 0.010464 mg/kg bwt/day, or 523% of the RfD. This level exceeds the RfD and generation of anticipated residues is recommended as a next step.

Parathion

The DRES chronic analysis for parathion used a Reference Dose of 0.00033 mg/kg bwt/day, based on a LEL of 0.01 mg/kg bwt/day and an uncertainty factor of 30. The RfD was based on a one year dog feeding study which exhibited plasma and red blood cell cholinesterase inhibition. This reference dose has been approved by the HED RfD committee (3/7/86) but was deferred by the Agency RfD committee (11/25/86), pending the Risk Assessment Council's approval of the Risk Assessment Forum's cholinesterase report.

Food uses evaluated in this analysis were the published tolerances of parathion on alfalfa, barley, canola, corn, cotton, sorghum, soybeans, sunflower, and wheat. The remaining published tolerances as reported in 40 CFR 180.121 were voluntarily cancelled by the registrants and so were not included in the analysis. Percent crop treated information used in the analysis was supplied by BEAD in a B. Torla memo dated 10/1/91. There is no entry for canola in DRES, so residue information for canola was included under the DRES commodity name rape seed. Rape seed

oil is basically the same thing as canola, differing mainly in that it has higher concentrations of erucic acid (personal communication with B. Schneider, CBTS, 2/4/92). Because use of parathion on canola will not occur until residue data are submitted, no percent crop treated data was given in the BEAD memo for canola, and therefore 100 percent crop treated was assumed in the DRES analysis. In addition, a default consumption value for rapeseed of 0.000001 g/kg bwt/day was assumed in DRES even though no consumption of rapeseed was reported in the USDA 1977-78 Nationwide Food Consumption Survey (NFCS) (from which the consumption values in DRES are derived) Both of these assumptions may lead to possible overestimation of exposure.

Using the updated percent crop treated information supplied by BEAD, the ARC from parathion use on these nine crops is 0.000099 mg/kg bwt/day, or 30% of the RfD. The subgroup most highly exposed, children aged one through six, has an ARC of 0.000225 mg/kg bwt/day, or 68% of the RfD. Since the risk from parathion from all of its remaining uses appears to be below the level of chronic concern for all subgroups, no further pursuit of refining data should be necessary. The values in this analysis suggest that the chronic dietary risk from this chemical on these uses is not of significant concern.

Attachments

cc: DES
CBTS(D. Edwards)
Caswell #s 372, 420, 586, 637

TABLE 1

TOLERANCE ASSESSMENT SYSTEM ROU....: CHRONIC ANALYSIS

DATE: 09/23/91 PAGE: 1

CHEMICAL INFORMATION	STUDY TYPE	EFFECTS	REFERENCE DOSES	DATA GAPS/COMMENTS	STATUS
Endosulfan Caswell #420 CAS No. 115-29-7 A.I. CODE: 079401 -CFR No. 180.182	2gen reprod- rat NOEL= 0.0000 mg/kg 0.00 ppm LEL= 0.1500 mg/kg 3.00 ppm ONCO: Negative- 2 species.	Discoloration of kidney tubules- No NOEL established for this effect. No evidence of oncogenicity in rat or mouse.	ADI UF -->300 OPP RfD= 0.000500 EPA RfD= 0.000050	No data gaps. Developmental tox studies to be rereviwed. Reproduction study to be looked at also.	HED complete 05/29/86. HED complete 03/06/87. EPA verified 03/18/87. RfD/PR reviewed 09/07/90. WHO last reviewed 1982. On IRIS.

POPULATION SUBGROUP	TOTAL TMRC (MG/KG BODY WEIGHT/DAY) CURRENT TMRC*	NEW TMRC**	NEW TMRC AS PERCENT OF RFD	DIFFERENCE AS PERCENT OF RFD	EFFECT OF ANTICIPATED RESIDUES ARC	%RFD
U.S. POPULATION - 48 STATES	0.012105	0.012105	2421.087800	0.000000	0.006484	1296.79680
U.S. POPULATION - SPRING SEASON	0.011587	0.011587	2317.388200	0.000000	0.006280	1255.99540
U.S. POPULATION - SUMMER SEASON	0.012964	0.012964	2592.872000	0.000000	0.006872	1374.38740
U.S. POPULATION - FALL SEASON	0.012011	0.012011	2402.137600	0.000000	0.006401	1280.28880
U.S. POPULATION - WINTER SEASON	0.011832	0.011832	2366.313000	0.000000	0.006352	1270.34560
NORTHEAST REGION	0.012439	0.012439	2487.789000	0.000000	0.006377	1275.37700
NORTH CENTRAL REGION	0.011697	0.011697	2339.363600	0.000000	0.006108	1221.67360
SOUTHERN REGION	0.011554	0.011554	2310.866600	0.000000	0.006712	1342.31980
WESTERN REGION	0.013166	0.013166	2633.211200	0.000000	0.006739	1347.70740
HISPANICS	0.012745	0.012745	2548.997600	0.000000	0.006914	1382.81400
NON-HISPANIC WHITES	0.012302	0.012302	2460.462000	0.000000	0.006499	1299.72840
NON-HISPANIC BLACKS	0.010412	0.010412	2082.323200	0.000000	0.006065	1212.98800
NON-HISPANIC OTHERS	0.012588	0.012588	2517.640400	0.000000	0.006971	1394.21420
NURSING INFANTS (< 1 YEAR OLD)	0.023150	0.023150	4630.072000	0.000000	0.009285	1857.02940
NON-NURSING INFANTS (< 1 YEAR OLD)	0.041880	0.041880	8376.098400	0.000000	0.019698	3939.56720
FEMALES (13+ YEARS, PREGNANT)	0.009571	0.009571	1914.188000	0.000000	0.005255	1050.90360
FEMALES 13+ YEARS, NURSING	0.011625	0.011625	2325.038800	0.000000	0.006265	1252.99920
CHILDREN (1-6 YEARS OLD)	0.026343	0.026343	5268.661000	0.000000	0.013265	2652.94920
CHILDREN (7-12 YEARS OLD)	0.017133	0.017133	3426.562200	0.000000	0.009021	1804.14780
MALES (13-19 YEARS OLD)	0.010806	0.010806	2161.109200	0.000000	0.005964	1192.87700
FEMALES (13-19 YEARS OLD, NOT PREG. OR NURSING)	0.009700	0.009700	1939.902400	0.000000	0.005300	1059.92300
MALES (20 YEARS AND OLDER)	0.008741	0.008741	1748.156600	0.000000	0.004857	971.39940
FEMALES (20 YEARS AND OLDER, NOT PREG. OR NURS)	0.009185	0.009185	1837.071600	0.000000	0.005096	1019.20820

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

w/PCT, no AR's

TABLE 2

TOLERANCE ASSESSMENT SYSTEM ROUTINE CHRONIC ANALYSIS

DATE: 11/04/91 PAGE: 1

CHEMICAL INFORMATION	STUDY TYPE	EFFECTS	REFERENCE DOSES	DATA GAPS/COMMENTS	STATUS
Methyl parathion Caswell #372 CAS No. 298-00-0 A.I. CODE: 053501 CFR No. 180.121	2yr feeding- rat NOEL= 0.0250 mg/kg 0.50 ppm LEL= 0.2500 mg/kg 5.00 ppm ONCO: Negative- 1 species	Decreased, RBC, Ht, Hb, - ChE; tentative pending submission of data for sciatic nerve changes. No evidence of oncogenicity in mice; rats pending.	PADI UF -->100 OPP RfD= 0.000250 EPA RfD= 0.000250	Chronic feeding- dog Chronic feeding- rat (Core-supplementary) ADI is tentative pending evaluation of sciatic nerve effects.	HED complete 10/10/86. EPA verified 12/09/86. WHO last reviewed 1984. On IRIS.

POPULATION SUBGROUP	TOTAL TMRC (MG/KG BODY WEIGHT/DAY) CURRENT TMRC*	NEW TMRC**	NEW TMRC AS PERCENT OF RFD	DIFFERENCE AS PERCENT OF RFD	EFFECT OF ANTICIPATED RESIDUES ARC	%RFD
U.S. POPULATION - 48 STATES	0.010122	0.010122	4048.697600	0.000000	0.004431	1772.28760
U.S. POPULATION - SPRING SEASON	0.009791	0.009791	3916.306400	0.000000	0.004372	1748.78520
U.S. POPULATION - SUMMER SEASON	0.010290	0.010290	4115.871600	0.000000	0.004534	1813.46440
U.S. POPULATION - FALL SEASON	0.010172	0.010172	4068.951200	0.000000	0.004362	1744.96360
U.S. POPULATION - WINTER SEASON	0.010197	0.010197	4078.771600	0.000000	0.004419	1767.61640
NORTHEAST REGION	0.011114	0.011114	4445.483200	0.000000	0.005150	2060.19080
NORTH CENTRAL REGION	0.009885	0.009885	3953.934400	0.000000	0.004213	1685.04840
SOUTHERN REGION	0.009082	0.009082	3632.601200	0.000000	0.003834	1533.60240
WESTERN REGION	0.010882	0.010882	4352.626000	0.000000	0.004764	1905.60400
HISPANICS	0.011775	0.011775	4709.861200	0.000000	0.005603	2241.37320
NON-HISPANIC WHITES	0.010063	0.010063	4025.182800	0.000000	0.004301	1720.42400
NON-HISPANIC BLACKS	0.009417	0.009417	3766.605600	0.000000	0.004456	1782.46120
NON-HISPANIC OTHERS	0.012112	0.012112	4844.643200	0.000000	0.006061	2424.26080
NURSING INFANTS (< 1 YEAR OLD)	0.016037	0.016037	6414.880800	0.000000	0.007332	2932.95920
NON-NURSING INFANTS (< 1 YEAR OLD)	0.028832	0.028832	11532.692400	0.000000	0.013354	5341.47800
FEMALES (13+ YEARS, PREGNANT)	0.007768	0.007768	3107.332800	0.000000	0.003581	1432.38040
FEMALES 13+ YEARS, NURSING	0.008840	0.008840	3535.910400	0.000000	0.003646	1458.32400
CHILDREN (1-6 YEARS OLD)	0.023353	0.023353	9341.048800	0.000000	0.010843	4337.03680
CHILDREN (7-12 YEARS OLD)	0.014754	0.014754	5901.514400	0.000000	0.006289	2515.65240
MALES (13-19 YEARS OLD)	0.009076	0.009076	3630.392400	0.000000	0.003594	1437.78600
FEMALES (13-19 YEARS OLD, NOT PREG. OR NURSING)	0.008060	0.008060	3223.817200	0.000000	0.003415	1366.18680
MALES (20 YEARS AND OLDER)	0.007283	0.007283	2913.345200	0.000000	0.002909	1163.69960
FEMALES (20 YEARS AND OLDER, NOT PREG. OR NURS)	0.007462	0.007462	2984.883200	0.000000	0.003413	1365.06120

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

TABLE 3

TOLERANCE ASSESSMENT SYSTEM ROUTINE CHRONIC ANALYSIS

DATE: 10/07/91 PAGE: 1

CHEMICAL INFORMATION	STUDY TYPE	EFFECTS	REFERENCE DOSES	DATA GAPS/COMMENTS	STATUS
Parathion Caswell #637 CAS No. 56-38-2 A.I. CODE: 057501 CFR No. 180.121	1yr feeding- dog NOEL= 0.0000 mg/kg 0.00 ppm LEL= 0.0100 mg/kg 0.00 ppm ONCO: Class C (TOX NOTE).	Plasma, RBC ChE inhibition; no NOEL. Evidence of oncogenicity in rats (adrenal cortex), negative in the mouse.	PADI UF -->30 OPP RfD= 0.000330 EPA RfD= 0.000000	LEL used for ADI. No data gaps. Extra UF of 3 used for lack of NOEL in critical study. Q* not appropriate.	HED complete 03/07/86. EPA deferred 11/25/86. Pending RAC approval of RAF ChE report. WHO last reviewed 1967.

POPULATION SUBGROUP	TOTAL TMRC (MG/KG BODY WEIGHT/DAY) CURRENT TMRC*	NEW TMRC**	NEW TMRC AS PERCENT OF RFD	DIFFERENCE AS PERCENT OF RFD	EFFECT OF ANTICIPATED RESIDUES ARC	%RFD
U.S. POPULATION - 48 STATES	0.002098	0.002098	635.805455	0.000000	0.000099	29.91303
U.S. POPULATION - SPRING SEASON	0.002025	0.002025	613.553939	0.000000	0.000094	28.41636
U.S. POPULATION - SUMMER SEASON	0.002104	0.002104	637.443030	0.000000	0.000101	30.71576
U.S. POPULATION - FALL SEASON	0.002141	0.002141	648.686970	0.000000	0.000100	30.29273
U.S. POPULATION - WINTER SEASON	0.002114	0.002114	640.748182	0.000000	0.000099	29.94606
NORTHEAST REGION	0.002058	0.002058	623.537273	0.000000	0.000095	28.78606
NORTH CENTRAL REGION	0.002142	0.002142	649.069091	0.000000	0.000102	30.82636
SOUTHERN REGION	0.002087	0.002087	632.494848	0.000000	0.000099	30.09364
WESTERN REGION	0.002094	0.002094	634.685758	0.000000	0.000097	29.38061
HISPANICS	0.002312	0.002312	700.493333	0.000000	0.000109	33.05636
NON-HISPANIC WHITES	0.002092	0.002092	633.798485	0.000000	0.000098	29.69727
NON-HISPANIC BLACKS	0.002039	0.002039	617.953030	0.000000	0.000098	29.59970
NON-HISPANIC OTHERS	0.001937	0.001937	586.935455	0.000000	0.000088	26.69848
NURSING INFANTS (< 1 YEAR OLD)	0.000971	0.000971	294.253030	0.000000	0.000045	13.57909
NON-NURSING INFANTS (< 1 YEAR OLD)	0.002727	0.002727	826.340000	0.000000	0.000133	40.43606
FEMALES (13+ YEARS, PREGNANT)	0.001468	0.001468	444.955455	0.000000	0.000069	21.00515
FEMALES 13+ YEARS, NURSING	0.001764	0.001764	534.688182	0.000000	0.000083	25.01273
CHILDREN (1-6 YEARS OLD)	0.004688	0.004688	1420.518182	0.000000	0.000225	68.21182
CHILDREN (7-12 YEARS OLD)	0.003449	0.003449	1045.228182	0.000000	0.000167	50.58909
MALES (13-19 YEARS OLD)	0.002390	0.002390	724.162424	0.000000	0.000113	34.14939
FEMALES (13-19 YEARS OLD, NOT PREG. OR NURSING)	0.001847	0.001847	559.732121	0.000000	0.000088	26.65212
MALES (20 YEARS AND OLDER)	0.001696	0.001696	513.866364	0.000000	0.000075	22.82636
FEMALES (20 YEARS AND OLDER, NOT PREG. OR NURS)	0.001331	0.001331	403.200606	0.000000	0.000063	18.95515

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

w/PCT, no AR's

ANTICIPATED RESIDUE INFORMATION FOR CASWELL NUMBER 637

DATE: 10/07/91

CHEMICAL	STUDY TYPE	EFFECTS	REFERENCE DOSES	DATA GAPS/COMMENTS	STATUS
Parathion Caswell #637 CAS No. 56-38-2 A.I. CODE: 057501 CFR No. 180.121	1yr feeding- dog NOEL= 0.0000 mg/kg 0.00 ppm LEL= 0.0100 mg/kg 0.00 ppm ONCO: Class C (TOX WOTE).	Plasma, RBC ChE inhibition; no NOEL. Evidence of oncogenicity in rats (adrenal cortex), negative in the mouse.	PADI UF -->30 OPP RfD= 0.000330 EPA RfD= 0.000000	LEL used for ADI. No data gaps. Extra UF of 3 used for lack of NOEL in critical study. Q* not appropriate.	HED complete 03/07/86. EPA deferred 11/25/86. Pending RAC approval of RAF ChE report. WHO last reviewed 1967.

FOOD CODE	FOOD	FOOD FORM	PET.#	TOLERANCE (ppm)	ANTICIPATED RESIDUE (ppm)	AR STATISTIC TYPE	% CROP TREATED	RES. VALUE USED IN TAS RUN (ppm)
15004AA	CORN,POP	21 COOKED-NFS		P 1.000000	1.000000		1.00	0.040000
15005AA	CORN,SWEET	10 RAW-FRESH OR NFS		P 1.000000	1.000000		35.00	0.110000
15005AA	CORN,SWEET	21 COOKED-NFS		P 1.000000	1.000000		35.00	0.110000
15005AA	CORN,SWEET	31 COOKED-FRESH OR CANNED		P 1.000000	1.000000		35.00	0.110000
15018AA	SUNFLOWER-SEEDS	10 RAW-FRESH OR NFS		P 0.200000	0.200000		30.00	0.032000
15029AA	SOYBEAN-SPROUTED	00 NOT SPECIFIED (NO CONSUMPTION)	0F0878	P 0.100000	0.100000		1.00	0.004000
24001AA	BARLEY	21 COOKED-NFS		P 1.000000	1.000000		8.00	0.010000
24002EA	CORN,GRAIN-ENDO	10 RAW-FRESH OR NFS		P 1.000000	1.000000		1.00	0.040000
24002EA	CORN,GRAIN-ENDO	21 COOKED-NFS		P 1.000000	1.000000		1.00	0.040000
24002EA	CORN,GRAIN-ENDO	22 COOKED-FRESH-BAKED		P 1.000000	1.000000		1.00	0.040000
24002EA	CORN,GRAIN-ENDO	23 COOKED-FRESH-BOILED		P 1.000000	1.000000		1.00	0.040000
24002HA	CORN,GRAIN-BRAN	00 NOT SPECIFIED (NO CONSUMPTION)		P 1.000000	1.000000		1.00	0.040000
24002SA	CORN SUGAR	10 RAW-FRESH OR NFS		P 1.000000	1.000000		1.00	0.040000
24002SA	CORN SUGAR	21 COOKED-NFS		P 1.000000	1.000000		1.00	0.040000
24002SA	CORN SUGAR	22 COOKED-FRESH-BAKED		P 1.000000	1.000000		1.00	0.040000
24006AA	SORGHUM	00 NOT SPECIFIED (NO CONSUMPTION)	1F1091	P 0.100000	0.100000		11.00	0.010000
24007AA	WHEAT-ROUGH	10 RAW-FRESH OR NFS	32	P 1.000000	1.000000		2.00	0.040000
24007AA	WHEAT-ROUGH	21 COOKED-NFS	32	P 1.000000	1.000000		2.00	0.040000
24007AA	WHEAT-ROUGH	22 COOKED-FRESH-BAKED	32	P 1.000000	1.000000		2.00	0.040000
24007AA	WHEAT-ROUGH	23 COOKED-FRESH-BOILED	32	P 1.000000	1.000000		2.00	0.040000
24007GA	WHEAT-GERM	10 RAW-FRESH OR NFS	32	P 1.000000	1.000000		2.00	0.040000
24007GA	WHEAT-GERM	22 COOKED-FRESH-BAKED	32	P 1.000000	1.000000		2.00	0.040000
24007HA	WHEAT-BRAN	10 RAW-FRESH OR NFS	32	P 1.000000	1.000000		2.00	0.040000
24007HA	WHEAT-BRAN	21 COOKED-NFS	32	P 1.000000	1.000000		2.00	0.040000
24007HA	WHEAT-BRAN	22 COOKED-FRESH-BAKED	32	P 1.000000	1.000000		2.00	0.040000
24007WA	WHEAT-FLOUR	10 RAW-FRESH OR NFS	32	P 1.000000	1.000000		2.00	0.040000
24007WA	WHEAT-FLOUR	21 COOKED-NFS	32	P 1.000000	1.000000		2.00	0.040000
24007WA	WHEAT-FLOUR	22 COOKED-FRESH-BAKED	32	P 1.000000	1.000000		2.00	0.040000
24007WA	WHEAT-FLOUR	25 COOKED-FRESH-FRIED	32	P 1.000000	1.000000		2.00	0.040000
27002OA	CORN,GRAIN-OIL	18 PROCESSED OIL		P 1.000000	1.000000		1.00	0.040000
27003OA	COTTONSEED-OIL	18 PROCESSED OIL	0F0878	P 0.750000	0.750000		4.00	0.015000
27003WA	COTTONSEED-MEAL	18 PROCESSED OIL	0F0878	P 0.750000	0.750000		4.00	0.015000
27010OA	SOYBEANS-OIL	18 PROCESSED OIL	0F0878	P 0.100000	0.100000		1.00	0.004000
27011OA	SUNFLOWER-OIL	18 PROCESSED OIL	8E0718	P 0.200000	0.200000		30.00	0.032000
27017AA	RAPE SEED	00 NOT SPECIFIED (NO CONSUMPTION)	3E1302	P 0.200000	0.200000		100.00	0.200000
28023AA	SOYBEANS-UNSPEC	21 COOKED-NFS	0F0878	P 0.100000	0.100000		1.00	0.004000
28023AB	SOYBEANS-DRY	10 RAW-FRESH OR NFS	0F0878	P 0.100000	0.100000		1.00	0.004000
28023AB	SOYBEANS-DRY	21 COOKED-NFS	0F0878	P 0.100000	0.100000		1.00	0.004000
28023AB	SOYBEANS-DRY	23 COOKED-FRESH-BOILED	0F0878	P 0.100000	0.100000		1.00	0.004000
28023AB	SOYBEANS-DRY	25 COOKED-FRESH-FRIED	0F0878	P 0.100000	0.100000		1.00	0.004000

CHEMICAL	STUDY TYPE	EFFECTS	REFERENCE DOSES	DATA GAPS/COMMENTS	STATUS
Parathion Caswell #637 CAS No. 56-38-2 A.I. CODE: 057501 CFR No. 180.121	1yr feeding- dog NOEL= 0.0000 mg/kg 0.00 ppm LEL= 0.0100 mg/kg 0.00 ppm ONCO: Class C (TOX WOTE).	Plasma, RBC ChE inhibition; no NOEL. Evidence of oncogenicity in rats (adrenal cortex), negative in the mouse.	PADI UF -->30 OPP RfD= 0.000330 EPA RfD= 0.000000	LEL used for ADI. No data gaps. Extra UF of 3 used for lack of NOEL in critical study. Q* not appropriate.	HED complete 03/07/86. EPA deferred 11/25/86. Pending RAC approval of RAF ChE report. WHO last reviewed 1967.

FOOD CODE	FOOD	FOOD FORM	PET.#	TOLERANCE (ppm)	ANTICIPATED RESIDUE (ppm)	AR STATISTIC TYPE	% CROP TREATED	RES. VALUE USED IN TAS RUN (ppm)
28023AB	SOYBEANS-DRY	31 COOKED-FRESH OR CANNED	0F0878	P 0.100000	0.100000		1.00	0.004000
28023WA	SOY-FL, FULL FAT	21 COOKED-NFS	0F0878	P 0.100000	0.100000		1.00	0.004000
28023WA	SOY-FL, FULL FAT	22 COOKED-FRESH-BAKED	0F0878	P 0.100000	0.100000		1.00	0.004000
28023WA	SOY-FL, FULL FAT	31 COOKED-FRESH OR CANNED	0F0878	P 0.100000	0.100000		1.00	0.004000
28023WB	SOY-FL, LOW FAT	21 COOKED-NFS	0F0878	P 0.100000	0.100000		1.00	0.004000
28023WC	SOY-FL,DEFAT	10 RAW-FRESH OR NFS	0F0878	P 0.100000	0.100000		1.00	0.004000
28023WC	SOY-FL,DEFAT	21 COOKED-NFS	0F0878	P 0.100000	0.100000		1.00	0.004000
28023WC	SOY-FL,DEFAT	22 COOKED-FRESH-BAKED	0F0878	P 0.100000	0.100000		1.00	0.004000
28023WC	SOY-FL,DEFAT	51 COOKED-CANNED	0F0878	P 0.100000	0.100000		1.00	0.004000
28023WC	SOY-FL,DEFAT	53 COOKED-CANNED-BOILED	0F0878	P 0.100000	0.100000		1.00	0.004000

TOLERANCE ASSESSMENT SYSTEM ROUTINE CHRONIC ANALYSIS

DATE: 10/07/91 PAGE: 1

CHEMICAL INFORMATION	STUDY TYPE	EFFECTS	REFERENCE DOSES	DATA GAPS/COMMENTS	STATUS
Parathion Caswell #637 CAS No. 56-38-2 A.I. CODE: 057501 CFR No. 180.121	1yr feeding- dog NOEL= 0.0000 mg/kg 0.00 ppm LEL= 0.0100 mg/kg 0.00 ppm ONCO: Class C (TOX WOTE).	Plasma, RBC ChE inhibition; no NOEL. Evidence of oncogenicity in rats (adrenal cortex), negative in the mouse.	PADI UF -->30 OPP RfD= 0.000330 EPA RfD= 0.000000	LEL used for ADI. No data gaps. Extra UF of 3 used for lack of NOEL in critical study. Q* not appropriate.	HED complete 03/07/86. EPA deferred 11/25/86. Pending RAC approval of RAF ChE report. WHO last reviewed 1967.

POPULATION SUBGROUP	TOTAL TMRC (MG/KG BODY WEIGHT/DAY) CURRENT TMRC*	NEW TMRC**	NEW TMRC AS PERCENT OF RFD	DIFFERENCE AS PERCENT OF RFD	EFFECT OF ANTICIPATED RESIDUES ARC	%RFD
U.S. POPULATION - 48 STATES	0.002098	0.002098	635.805455	0.000000	0.000099	29.91303
U.S. POPULATION - SPRING SEASON	0.002025	0.002025	613.553939	0.000000	0.000094	28.41636
U.S. POPULATION - SUMMER SEASON	0.002104	0.002104	637.443030	0.000000	0.000101	30.71576
U.S. POPULATION - FALL SEASON	0.002141	0.002141	648.686970	0.000000	0.000100	30.29273
U.S. POPULATION - WINTER SEASON	0.002114	0.002114	640.748182	0.000000	0.000099	29.94606
NORTHEAST REGION	0.002058	0.002058	623.537273	0.000000	0.000095	28.78606
NORTH CENTRAL REGION	0.002142	0.002142	649.069091	0.000000	0.000102	30.82636
SOUTHERN REGION	0.002087	0.002087	632.494848	0.000000	0.000099	30.09364
WESTERN REGION	0.002094	0.002094	634.685758	0.000000	0.000097	29.38061
HISPANICS	0.002312	0.002312	700.493333	0.000000	0.000109	33.05636
NON-HISPANIC WHITES	0.002092	0.002092	633.798485	0.000000	0.000098	29.69727
NON-HISPANIC BLACKS	0.002039	0.002039	617.953030	0.000000	0.000098	29.59970
NON-HISPANIC OTHERS	0.001937	0.001937	586.935455	0.000000	0.000088	26.69848
NURSING INFANTS (< 1 YEAR OLD)	0.000971	0.000971	294.253030	0.000000	0.000045	13.57909
NON-NURSING INFANTS (< 1 YEAR OLD)	0.002727	0.002727	826.340000	0.000000	0.000133	40.43606
FEMALES (13+ YEARS, PREGNANT)	0.001468	0.001468	444.955455	0.000000	0.000069	21.00515
FEMALES 13+ YEARS, NURSING	0.001764	0.001764	534.688182	0.000000	0.000083	25.01273
CHILDREN (1-6 YEARS OLD)	0.004688	0.004688	1420.518182	0.000000	0.000225	68.21182
CHILDREN (7-12 YEARS OLD)	0.003449	0.003449	1045.228182	0.000000	0.000167	50.58909
MALES (13-19 YEARS OLD)	0.002390	0.002390	724.162424	0.000000	0.000113	34.14939
FEMALES (13-19 YEARS OLD, NOT PREG. OR NURSING)	0.001847	0.001847	559.732121	0.000000	0.000088	26.65212
MALES (20 YEARS AND OLDER)	0.001696	0.001696	513.866364	0.000000	0.000075	22.82636
FEMALES (20 YEARS AND OLDER, NOT PREG. OR NURS)	0.001331	0.001331	403.200606	0.000000	0.000063	18.95515

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

CHEMICAL INFORMATION	STUDY TYPE	EFFECTS	REFERENCE DOSES	DATA GAPS/COMMENTS	STATUS
Parathion Caswell #637 CAS No. 56-38-2 A.I. CODE: 057501 CFR No. 180.121	1yr feeding- dog NOEL= 0.0000 mg/kg 0.00 ppm LEL= 0.0100 mg/kg 0.00 ppm ONCO: Class C (TOX WOTE).	Plasma, RBC ChE inhibition; no NOEL. Evidence of oncogenicity in rats (adrenal cortex), negative in the mouse.	PADI UF -->30 OPP RfD= 0.000330 EPA RfD= 0.000000	LEL used for ADI. No data gaps. Extra UF of 3 used for lack of NOEL in critical study. Q* not appropriate.	HED complete 03/07/86. EPA deferred 11/25/86. Pending RAC approval of RAF ChE report. WHO last reviewed 1967.

COMMODITY CONTRIBUTION BY RAC FOR: U.S. POPULATION - 48 STATES

FOOD CODE	FOODNAME/FOODFORM	TOLERANCE (PPM)	TYPE	TMRC (UG/KG/DAY)	%RFD	ANTICIPATED RESIDUE (PPM)	ARC (UG/KG/DAY)	%RFD
15018AA	SUNFLOWER-SEEDS	0.200	P	0.000346	0.105	0.03200	0.000055	0.017
	10 RAW-FRESH OR NFS							
270030A	COTTONSEED-OIL	0.750	P	0.015306	4.638	0.01500	0.000306	0.093
	18 PROCESSED OIL							
27003WA	COTTONSEED-MEAL	0.750	P	0.000088	0.027	0.01500	0.000002	0.001
	18 PROCESSED OIL							
270110A	SUNFLOWER-OIL	0.200	P	0.000497	0.151	0.03200	0.000079	0.024
	18 PROCESSED OIL							
27017AA	RAPE SEED	0.200	P	0.000000	0.000	0.20000	0.000000	0.000
	00 NOT SPECIFIED (NO CONSUMPTION)							
	CROP GROUP TOTALS FOR UNSPECIFIED:			0.016237	4.920		0.000442	0.134
15029AA	SOYBEANS-SPROUTED SEEDS	0.100	P	0.000000	0.000	0.00400	0.000000	0.000
	00 NOT SPECIFIED (NO CONSUMPTION)							
270100A	SOYBEANS-OIL	0.100	P	0.032216	9.762	0.00400	0.001289	0.391
	18 PROCESSED OIL							
28023AA	SOYBEANS-UNSPECIFIED	0.100	P	0.000052	0.016	0.00400	0.000002	0.001
	21 COOKED-NFS							
28023AB	SOYBEANS-MATURE,SEEDS DRY	0.100	P	0.000090	0.027	0.00400	0.000001	0.000
	10 RAW-FRESH OR NFS					0.00400	0.000001	0.000
	21 COOKED-NFS					0.00400	0.000000	0.000
	23 COOKED-FRESH-BOILED					0.00400	0.000001	0.000
	25 COOKED-FRESH-FRIED					0.00400	0.000000	0.000
	31 COOKED-FRESH OR CANNED							
28023WA	SOYBEANS-FLOUR, FULL FAT	0.100	P	0.000292	0.088	0.00400	0.000004	0.001
	21 COOKED-NFS					0.00400	0.000006	0.002
	22 COOKED-FRESH-BAKED					0.00400	0.000002	0.001
	31 COOKED-FRESH OR CANNED							
28023WB	SOYBEANS-FLOUR, LOW FAT	0.100	P	0.000095	0.029	0.00400	0.000004	0.001
	21 COOKED-NFS							
28023WC	SOYBEANS-FLOUR,DEFATTED	0.100	P	0.001246	0.378	0.00400	0.000003	0.001
	10 RAW-FRESH OR NFS					0.00400	0.000003	0.001
	21 COOKED-NFS					0.00400	0.000021	0.006
	22 COOKED-FRESH-BAKED					0.00400	0.000013	0.004
	51 COOKED-CANNED					0.00400	0.000011	0.003
	53 COOKED-CANNED-BOILED							
	CROP GROUP TOTALS FOR LEGUME VEGETABLES:			0.033991	10.300		0.001361	0.412

CHEMICAL INFORMATION	STUDY TYPE	EFFECTS	REFERENCE DOSES	DATA GAPS/COMMENTS	STATUS
Parathion Caswell #637 CAS No. 56-38-2 A.I. CODE: 057501 CFR No. 180.121	1yr feeding- dog NOEL= 0.0000 mg/kg 0.00 ppm LEL= 0.0100 mg/kg 0.00 ppm ONCO: Class C (TOX WOTE).	Plasma, RBC ChE inhibition; no NOEL. Evidence of oncogenicity in rats (adrenal cortex), negative in the mouse.	PADI UF -->30 OPP RfD= 0.000330 EPA RfD= 0.000000	LEL used for ADI. No data gaps. Extra UF of 3 used for lack of NOEL in critical study. Q* not appropriate.	HED complete 03/07/86. EPA deferred 11/25/86. Pending RAC approval of RAF ChE report. WHO last reviewed 1967.

COMMODITY CONTRIBUTION BY RAC FOR: U.S. POPULATION - 48 STATES

FOOD CODE	FOODNAME/FOODFORM	TOLERANCE (PPM)	TYPE	TMRC (UG/KG/DAY)	%RFD	ANTICIPATED RESIDUE (PPM)	ARC (UG/KG/DAY)	%RFD
15004AA	CORN,POP	1.000	P	0.006771	2.052			
	21 COOKED-NFS					0.04000	0.000271	0.082
15005AA	CORN,SWEET	1.000	P	0.236707	71.729			
	10 RAW-FRESH OR NFS					0.11000	0.000011	0.003
	21 COOKED-NFS					0.11000	0.021924	6.644
	31 COOKED-FRESH OR CANNED					0.11000	0.004103	1.243
24001AA	BARLEY	1.000	P	0.057301	17.364			
	21 COOKED-NFS					0.01000	0.000573	0.174
24002EA	CORN,GRAIN-ENDOSPERM	1.000	P	0.165401	50.122			
	10 RAW-FRESH OR NFS					0.04000	0.000024	0.007
	21 COOKED-NFS					0.04000	0.000871	0.264
	22 COOKED-FRESH-BAKED					0.04000	0.004916	1.490
	23 COOKED-FRESH-BOILED					0.04000	0.000805	0.244
24002HA	CORN,GRAIN-BRAN	1.000	P	0.000001	0.000			
	00 NOT SPECIFIED (NO CONSUMPTION)					0.04000	0.000000	0.000
24002SA	CORN SUGAR	1.000	P	0.145749	44.166			
	10 RAW-FRESH OR NFS					0.04000	0.000227	0.069
	21 COOKED-NFS					0.04000	0.005055	1.532
	22 COOKED-FRESH-BAKED					0.04000	0.000548	0.166
24006AA	SORGHUM (INCLUDING MILO)	0.100	P	0.002377	0.720			
	00 NOT SPECIFIED (NO CONSUMPTION)					0.01000	0.000238	0.072
24007AA	WHEAT-ROUGH	1.000	P	0.140612	42.610			
	10 RAW-FRESH OR NFS					0.04000	0.000000	0.000
	21 COOKED-NFS					0.04000	0.000359	0.109
	22 COOKED-FRESH-BAKED					0.04000	0.003435	1.041
	23 COOKED-FRESH-BOILED					0.04000	0.001830	0.555
24007GA	WHEAT-GERM	1.000	P	0.000805	0.244			
	10 RAW-FRESH OR NFS					0.04000	0.000000	0.000
	22 COOKED-FRESH-BAKED					0.04000	0.000032	0.010
24007HA	WHEAT-BRAN	1.000	P	0.012157	3.684			
	10 RAW-FRESH OR NFS					0.04000	0.000003	0.001
	21 COOKED-NFS					0.04000	0.000006	0.002
	22 COOKED-FRESH-BAKED					0.04000	0.000477	0.145
24007WA	WHEAT-FLOUR	1.000	P	1.257249	380.985			
	10 RAW-FRESH OR NFS					0.04000	0.000014	0.004
	21 COOKED-NFS					0.04000	0.028072	8.507
	22 COOKED-FRESH-BAKED					0.04000	0.018474	5.598
	25 COOKED-FRESH-FRIED					0.04000	0.003730	1.130
270020A	CORN,GRAIN-OIL	1.000	P	0.022800	6.909			
	18 PROCESSED OIL					0.04000	0.000912	0.276
	CROP GROUP TOTALS FOR CEREAL GRAINS:			2.047930	620.585		0.096910	29.367

12

CHEMICAL INFORMATION	STUDY TYPE	EFFECTS	REFERENCE DOSES	DATA GAPS/COMMENTS	STATUS
Parathion Caswell #637 CAS No. 56-38-2 A.I. CODE: 057501 CFR No. 180.121	1yr feeding- dog NOEL= 0.0000 mg/kg 0.00 ppm LEL= 0.0100 mg/kg 0.00 ppm ONCO: Class C (TOX WOTE).	Plasma, RBC ChE inhibition; no NOEL. Evidence of oncogenicity in rats (adrenal cortex), negative in the mouse.	PADI UF -->30 OPP RfD= 0.000330 EPA RfD= 0.000000	LEL used for ADI. No data gaps. Extra UF of 3 used for lack of NOEL in critical study. Q* not appropriate.	HED complete 03/07/86. EPA deferred 11/25/86. Pending RAC approval of RAF ChE report. WHO last reviewed 1967.

COMMODITY CONTRIBUTION BY RAC FOR: U.S. POPULATION - 48 STATES

FOOD CODE	FOODNAME/FOODFORM	TOLERANCE (PPM)	TYPE	TMRC (UG/KG/DAY)	%RFD	ANTICIPATED RESIDUE (PPM)	ARC (UG/KG/DAY)	%RFD
ND TOTALS FOR U.S. POPULATION - 48 STATES				2.098158	635.805		0.098713	29.913

TOLERANCE TYPE: N=NEW; A=PENDING; P=PUBLISHED
TMRC=THEORETICAL MAXIMUM RESIDUE CONTRIBUTION
ARC = ANTICIPATED RESIDUE CONTRIBUTION
RFD = REFERENCE DOSE