

US EPA ARCHIVE DOCUMENT

APPENDIX

Table A. Mean RBC Cholinesterase Activity (U/L; mean $\pm$ s.d.)					
Time/Dose (mg/kg)	0 ^A	0 ^B	0.5 ^A	1.0 ^A	2.0 ^B
Males					
-10	7520 $\pm$ 733	9292 $\pm$ 1130	8758 $\pm$ 706	9317 $\pm$ 790	8802 $\pm$ 753
0	8143 $\pm$ 982	9171 $\pm$ 1112	8998 $\pm$ 730	9572 $\pm$ 539	8608 $\pm$ 896
average pre-test	7832	9232	8878	9444	8705
2	8023 $\pm$ 795	9282 $\pm$ 1026	9145 $\pm$ 714	9568 $\pm$ 427	8675 $\pm$ 844
4	7948 $\pm$ 756	9145 $\pm$ 1066	9046 $\pm$ 623	9862 $\pm$ 865	8642 $\pm$ 924
8	8008 $\pm$ 645	9189 $\pm$ 1101	9189 $\pm$ 924	9524 $\pm$ 352	8613 $\pm$ 872
12	8043 $\pm$ 705	9198 $\pm$ 1003	8848 $\pm$ 663	9543 $\pm$ 678	8584 $\pm$ 806
24	8036 $\pm$ 815	9051 $\pm$ 852	9046 $\pm$ 817	9599 $\pm$ 637	8637 $\pm$ 878
36	7674 $\pm$ 556	8999 $\pm$ 1020	8716 $\pm$ 821	9295 $\pm$ 626	8663 $\pm$ 937
48	7505 $\pm$ 845	9042 $\pm$ 904	8246 $\pm$ 896	8694 $\pm$ 669	8567 $\pm$ 881
72	7920 $\pm$ 838	9425 $\pm$ 1041	8974 $\pm$ 810	9623 $\pm$ 652	9004 $\pm$ 840
96	7421 $\pm$ 745 (9)	9209 $\pm$ 849	8036 $\pm$ 738 (11)	8263 $\pm$ 399 (14)	8815 $\pm$ 868
120	7536 $\pm$ 694	9337 $\pm$ 765	8571 $\pm$ 691	8939 $\pm$ 255	8807 $\pm$ 904
144	7316 $\pm$ 598 (10)	9302 $\pm$ 800	8764 $\pm$ 837	8714 $\pm$ 418	8857 $\pm$ 907
168	7770 $\pm$ 734	9304 $\pm$ 994	8527 $\pm$ 764	8600 $\pm$ 470	8793 $\pm$ 562
Females					
-10	8488 $\pm$ 829	8485 $\pm$ 373	8804 $\pm$ 1068	8833 $\pm$ 597	8503 $\pm$ 939
0	8619 $\pm$ 861	8576 $\pm$ 556	8612 $\pm$ 1160	9165 $\pm$ 709	8523 $\pm$ 855
average pre-test	8554	8412	8708	8998	8513
2	8611 $\pm$ 915	8444 $\pm$ 494	8666 $\pm$ 1194	9095 $\pm$ 366	8395 $\pm$ 855
4	8762 $\pm$ 902	8380 $\pm$ 422	8412 $\pm$ 1368	9396 $\pm$ 517	8557 $\pm$ 1181
8	8817 $\pm$ 884	8716 $\pm$ 535	8547 $\pm$ 1010	9060 $\pm$ 528	8230 $\pm$ 1274
12	8404 $\pm$ 696	8589 $\pm$ 499	8334 $\pm$ 917	8886 $\pm$ 400	7761 $\pm$ 1239 (9)
24	8503 $\pm$ 900	8510 $\pm$ 667	8434 $\pm$ 857	9053 $\pm$ 241	8092 $\pm$ 1191 (6)
36	8089 $\pm$ 829	8399 $\pm$ 476	8244 $\pm$ 1015	8617 $\pm$ 379	8166 $\pm$ 1100 (4)
48	8349 $\pm$ 735	8545 $\pm$ 496	8459 $\pm$ 1068	8895 $\pm$ 641	8057 $\pm$ 1202 (6)
72	8551 $\pm$ 583	8941 $\pm$ 442	8938 $\pm$ 1083	9181 $\pm$ 477	8604 $\pm$ 1064
96	7795 $\pm$ 759 (10)	8620 $\pm$ 537	8147 $\pm$ 1213	8508 $\pm$ 791	8551 $\pm$ 812
120	8092 $\pm$ 721	8712 $\pm$ 507	8301 $\pm$ 857	8466 $\pm$ 612	8591 $\pm$ 682
144	8144 $\pm$ 872	8428 $\pm$ 727	8028 $\pm$ 917 (7)	8462 $\pm$ 714	8526 $\pm$ 1111
168	8036 $\pm$ 876	8549 $\pm$ 571	8198 $\pm$ 910	8366 $\pm$ 499 (9)	8419 $\pm$ 814

Data from Tables 5.1.1 (pages 55-57) and 9.1.1 (pages 76-77) of MRID 44811002; ^A Phase 1; ^B Phase 2;
 (↓% from 0-hour)

Table B. Serum Paraoxonase/CPOase and 0-hour RBC AChE Activity and Phenotype			
#/sex/phenotype	CPOase (U/L)	Paraoxonase (U/L)	RBC AChE (U/L)
0.5 mg/kg [range]			
3M (QR)	6850	706	8613
5M (QQ)	8666	317	7942
9M (QQ)	10446	417	8602
12M (QQ)	5412	250	9471
15M (QR)	6871	745	9889
18M (QR)	5412	562	9471
	7276±1963 (male)	500±204 (male)	8998±730 (male)
19F (QR)	8073	595	7282
22F (QR)	6994	717	9218
26F (QQ)	8954	373	8602
28F (QR)	8091	895	9900
31F (QQ)	6671	261	9515
36F (QR)	13341	1346	7156
	8687±2424 (female)	698±391 (female)	8612±1160 (female)
mean±s.d.	7965±1536 (both)	599±315 (both)	
1.0 mg/kg [range]			
1M (QQ)	6599	317	9108
4M (RR)	8505	1479	9669
7M (QR)	9008	984	9713
11M (QQ)	7785	361	10098
14M (QQ)	8774	367	10087
16M (QR)	8325	834	8756
	8166±874 (male)	724±464 (male)	9572±539 (male)
21F (QQ)	11615	467	9900
24F (QQ)	7534	295	9757
25F (QQ)	7426	339	9548
30F (QR)	10141	923	9130
33F (QR)	8019	1040	8140
35F (QR)	7821	756	8514
	8754±1719 (female)	637±314 (female)	9165±709 (female)
mean±s.d.	8463±1386 (both)	680±380 (both)	
2.0 mg/kg [range]			
38M (QR)	13018	1234	8283
40M (QQ)	8918	345	10021
42M (QR)	7048	890	9372
43M (QR)	9134	801	8118
47M (QQ)	10213	456	7645
48M (QR)	8199	823	8206
	9422±2051 (male)	758±320 (male)	8608±896 (male)
49F (QQ)	9997	367	7766
51F (QR)	10716	1234	7942
55F (RR)	9422	1590	10076
56F (QQ)	9278	367	8910
58F (QQ)	10141	389	8195
59F (QQ)	8199	345	8250
	9626±871 (female)	715±551 (female)	8523±855 (female)
mean±s.d.	9523±1517 (both)	737±430 (both)	

pages 48-50, 55-57, and 76-77 (MRID 45144101); QQ (low); QR (mid); RR (high)

Table C. Serum Paraoxonase/CPOase and 0-hour RBC AChE Activity (control) and Phenotype			
Subject #	CPOase (units/L)	Paraoxonase (units/L)	RBC AChE (U/L)
Phase 1 Control			
2M (RR)	9565	1668	9196
6M (OR)	5430	645	8921
8M (OR)	6329	728	6809
10M (OR)	9350	882	7821
13M (QQ)	7678	317	8833
17M (QQ)	8001	311	7277
mean±s.d.	7726±1632 (male)	558±500 (male)	8143±982 (male)
20F (QQ)	10015	411A	8239
23F (QQ)	6329	284	8723
27F (QQ)	8217	350	10208
29F (OR)	9871	834	7865
32F (QQ)	9817	434	8723
34F (OR)	10410	1207	7953
mean±s.d.	9110±1556 (female)	586±360 (female)	8619±861 (female)
mean±s.d.	8418±1639 (both)	673±425 (both)	
Phase 2 Control			
37M (OR)	9997	1001	9361
39M (QQ)	15894	567	8569
41M (QQ)	9206	378	9592
44M (OR)	9709	1045	10835
45M (OR)	11723	1112	7486
46M (OR)	11363	1134	9185
mean±s.d.	11315±2445 (male)	872±319 (male)	9171±1112 (male)
50F (QQ)	10141	423	8492
52F (QQ)	10069	456	7744
53F (OR)	14096	1134	8261
54F (QQ)	6904	289	8602
57F (RR)	17333	2502	9086
60F (QQ)	9853	367	9273
mean±s.d.	11400±3700 (female)	862±860 (female)	8576±556 (female)
mean±s.d.	11357±3097 (both)	867±618 (both)	

Pages 57 and 77 (MRID 44811002); QQ (low); OR (mid); RR (high)

Table D. Male RBC AChE Activity, Blood TCP Level, and CP Level (2.0 mg/kg)						
Subject # ()	38 (QR)	40 (QQ)	42 (QR)	43 (QR)	47 (QQ)	48 (QR)
Hour	AChE (U/L)					
-10	9141	9680	9493	8041	7887	8569
0	8283	10021	9372	8118	7645	8206
2	8437	9922	9537	8206	7931	8019
4	8360	10109	9471	7964	7942	8008
8	9097	9856	9152	7942	7744	7887
12	8800	9768	9130	8327	7788	7689
24	8877	9790	9350	8228	7370	8206
36	8998	9889	9405	8437	7700	7546
48	8481	9636	9658	8129	7667	7832
72	9372	9966	9834	8668	8107	8074
96	8976	9966	9648	8690	7942	7766
120	9108	10021	9592	8052	8305	7766
144	8844	9955	9911	8569	7920	7942
168	8734	9691	9174	8668	8305	8184
Chlorpyrifos concentrations (ng/g) in blood samples						
0	ND	ND	ND	ND	ND	ND
2	ND	ND	ND	ND	3.1	ND
4	ND	ND	ND	ND	1.3	ND
8	ND	ND	ND	ND	3.4	ND
12	ND	ND	ND	ND	1.8	ND
24	ND	ND	ND	ND	ND	ND
36	ND	ND	ND	ND	ND	ND
48	ND	ND	ND	ND	ND	ND
72	ND	ND	ND	ND	ND	ND
96	ND	ND	ND	ND	ND	ND
120	ND	ND	ND	ND	ND	ND
144	ND	ND	ND	ND	ND	ND
168	ND	ND	ND	ND	ND	ND
TCP concentrations (ng/g) in blood samples						
0	ND	ND	ND	ND	ND	ND
2	420	61	44	230	580	180
4	560	220	130	340	640	250
8	510	320	230	330	790	240
12	440	340	270	410	910	260
24	430	340	ns	520	980	380
36	500	360	360	610	960	460
48	530	410	370	610	1000	470
72	1100	270	320	320	690	300
96	290	170	220	190	460	210
120	160	120	160	90	320	140
144	85	75	96	66	220	77
168	41	98	220	40	150	48

Data from Tables 5 and 7 (pages 34 and 36) of MRID 45144101; ns no sample; (phenotype); ~~value not used~~

Table E. Female RBC AChE Activity, Blood TCP Level and CP Level (2 mg/kg)						
Subject #	49 (QQ)	51 (QR)	55 (RR)	56 (QQ)	58 (QQ)	59 (QQ)
Hours	AChE (U/L)					
-10	7832	8283	10373	8426	8041	8063
0	7766	7942	10076	8910	8195	8250
2	7700	7931	10032	8602	8041	8063
4	7662	7997	10901	8525	8096	8162
8	8008	7986	10582	6688 (25)	7931	8184
12	7513	7640	10032	6221 (30)	7535 (8)	7623 (8)
24	8008	7722	10131	6424 (28)	8107	8162
36	8710	7700	10274	7051 (21)	8107	8052
48	7568	7876	10395	6892 (23)	7821	7788
72	7920	8195	10461	X	8503	7942
96	7986	8415	9933	X	7931	8492
120	8019	8569	9757	X	8228	8382
144	7931	7975	10472	X	7832	8415
168	8327	8074	9845	X	7876	7975
Chlorpyrifos concentrations (ng/g) in blood samples						
0	ND	ND	ND	ND	ND	ND
2	3.1	ND	ND	ND	ND	2.2
4	xx	ND	ND	ND	ND	4.1
8	1.7	ND	ND	18.0	ND	4.1
12	ND	ND	ND	2.5	ND	1.5
24	ND	ND	ND	ND	ND	ND
36	ND	ND	ND	ND	ND	ND
48	ND	ND	ND	ND	ND	ND
72	ND	ND	ND	ND	ND	ND
96	ND	ND	ND	ND	ND	ND
120	ND	ND	ND	ND	ND	ND
144	ND	ND	ND	ND	ND	ND
0168	ND	ND	ND	ND	ND	ND
TCP concentrations (ng/g) in blood samples						
0	ND	ND	ND	ND	ND	ND
2	290	420	290	71	240	250
4	450	580	220	120	310	470
8	490	1300	520	1600	480	610
12	440	690	500	1500	340	610
24	470	540	600	1300	400	500
36	430	750	600	1100	430	480
48	360	730	530	980	360	390
72	200	600	340	X	190	220
96	130	420	210	X	110	110
120	84	150	120	X	65	58
144	52	170	73	X	37	32
168	35	110	45	X	24	23

Data from Tables 5 and 7 (pages 34 and 36) of MRID 45144101; (% inhibition from 0 hour); xx sample not analyzed;
X subject left study

Table F. Male RBC AChE Activity, Blood TCP Level and CP Level (1.0 mg/kg)						
Subject #	1 (QQ)	4 (RR)	7 (QR)	11 (QQ)	14 (QQ)	16 (QR)
AChE (U/L)						
-10	8272	9416	9603	10307	9823	8481
0	9108	9669	9713	10098	10087	8756
2	9625	9438	10230	9097	9845	9174
4	9823	9405	11198	10318	9801	8624
8	9284	9361	9834	9768	9878	9020
12	9042	10219	10109	9779	9658	8448
24	9306	10219	9966	9977	9658	8470
36	9119	9702	9746	9768	9295	8140
48	8074	8624	9196	9141	9174	7953
72	9295	10164	9801	10153	9867	8459
96	8283	8151	8096	7700 (↓24)	8899	8448
120	9218	8723	8800	9185	9086	8624
144	8833	8426	9141	9218	8492	8173
168	8228	8734	9174	-	8844	8019
Chlorpyrifos concentrations (ng/g) in blood samples						
0	ND	ND	ND	Ns	ND	ND
2	ND	ND	ND	1.0	ND	ND
4	ND	ND	ND	ND	2.7	ND
8	ND	ND	ND	ND	1.5	ND
12	ND	ND	ND	ND	ND	ND
24	ND	ND	ND	ND	ND	ND
36	ND	ND	ND	ND	ND	ND
48	ND	ND	ND	ND	ND	ND
72	ND	ND	ND	ND	ND	ND
96	ND	ND	ND	ND	ND	ND
120	ND	ND	ND	ND	ND	ND
144	ND	ND	ND	ND	ND	ND
168	ND	ND	ND	Ns	ND	ND
TCP concentrations (ng/g) in blood samples						
0	ND	ND	ND	ND	ND	ND
2	140	49	370	260	170	150
4	280	130	430	450	570	200
8	340	290	440	400	610	170
12	340	300	350	340	540	170
24	440	250	270	270	520	200
36	430	240	160	200	440	280
48	310	230	140	160	420	300
72	160	160	54	75	280	210
96	84	98	23	36	220	130
120	41	54	10	20	150	84
144	18	34	ND	ND	84	48
168	11	20	ND	Ns	50	29

Data from page 56 of 578 and Tables 5 and 7 (pages 34 and 36) of MRID 45144101; ns no sample;

Table G. Female RBC AChE Activity, Blood TCP Level and CP Level (1.0 mg/kg)						
Subject #	21 (QQ)	24 (QQ)	25 (QQ)	30 (QR)	33 (QR)	35 (QR)
AChE (U/L)						
-10	9416	9295	9031	9064	7942	8250
0	9900	9757	9548	9130	8140	8514
2	9460	9460	9240	8932	8965	8514
4	10087	9999	9152	9229	8866	9042
8	9394	9570	9427	9119	8624	8228
12	9361	9350	8855	8822	8470	8459
24	9317	9097	9339	8943	8877	8745
36	8789	9218	8624	8536	8074	8459
48	9361	9604	9174	8998	7766	8569
72	9064	9240	9460	9900	8503	8921
96	8637	8844	8437	8349	7178	9603
120	8954	9086	8426	8855	7601	7876
144	8932	9207	8580	8613	7156	8283
168	8624	8525	8855	8712	7678	7799
Chlorpyrifos concentrations (ng/g) in blood samples						
0	ND	ND	ND	ND	ND	ND
2	5.6	ND	ND	ND	ND	ND
4	2.9	ND	ND	ND	ND	ND
8	ND	ND	ND	1.1	ND	ND
12	ND	ND	ND	ND	ND	ND
24	ND	ND	ND	ND	ND	ND
36	ND	ND	ND	ND	ND	ND
48	ND	ND	ND	ND	ND	ND
72	ND	ND	ND	ND	ND	ND
96	ND	ND	ND	ND	ND	ND
120	ND	ND	ND	ND	ND	ND
144	ND	ND	ND	ND	ND	ND
168	ND	ND	ND	ND	ND	ND
TCP concentrations (ng/g) in blood samples						
0	ND	ND	ND	ND	ND	ND
2	220	96	160	10	32	72
4	350	430	180	160	93	250
8	310	340	190	310	100	490
12	300	310	190	290	110	430
24	300	320	220	290	140	370
36	290	320	200	280	140	310
48	280	300	160	280	110	350
72	140	250	85	240	70	190
96	75	180	30	160	45	140
120	43	120	16	85	29	99
144	22	73	ND	45	17	75
168	13	47	ND	23	13	30

Data from page 56 of 578 and Tables 5 and 7 (pages 34 and 36) of MRID 45144101; ns no sample;

Table H. Male and Female RBC AChE Activity and Blood TCP Level (0.5 mg/kg)						
Subject #	3 (QR)	5 (QQ)	9 (QQ)	12 (QQ)	15 (QR)	18 (QR)
MALES AChE (U/L)						
-10	8393	7865	8294	8877	9713	9405
0	8613	7942	8602	9471	9889	9471
2	8668	8547	8437	9218	10021	9977
4	8514	8481	8646	9031	9944	9658
8	8228	8217	8844	9482	9845	10516
12	8118	8030	8723	9229	9471	9515
24	8393	8074	8580	9394	9680	10153
36	7997	7810	8261	8910	9670	9746
48	7244	7128	8107	9053	9119	8822
72	8426	8074	8260	9504	9889	9702
96	8558	7282	6985 (↓19)	8096	8525	8767
120	8679	7920	7535 (↓12)	8921	9207	9163
144	8283	8712	7376 (↓14)	9537	9548	9130
168	8107	7931	7700 (↓11)	8547	9295	9581
MALES TCP concentrations (ng/g) in blood samples						
0	ND	ND	ND	ND	ND	ND
2	23	49	24	29	160	51
4	95	53	140	83	250	100
8	97	51	130	96	240	130
12	96	130	240	97	210	130
24	130	98	130	100	190	120
36	140	100	130	110	190	110
48	140	100	120	110	190	110
72	87	59	70	96	130	73
96	58	24	41	67	88	48
120	38	8	25	38	56	29
144	22	ND	14	19+	33	15
168	14	ND	10	ND	23	9
Subject #	19	22	26	28	31	36
FEMALES AChE (U/L)						
-10	9724	9086	8063	10010	8800	7139
0	7282	9218	8602	9900	9515	7156
2	7986	8932	8448	10252	9526	6853
4	7810	9141	8239	10593	8239	6501
8	8041	9097	8305	9966	8866	7007
12	7843	8349	8437	9779	8602	6996
24	7832	8866	8041	9746	8756	7365
36	7535	8987	7810	9834	8228	7068
48	7623	8921	8129	10109	8855	7117
72	7953	9394	8701	10516	9482	7579
96	7997	8646	7689	10153	7920	6474
120	7931	8437	7975	9581	8811	7073
144	7689	8195	7744	9218	8734	6589
168	7744	8657	7733	9130	9086	6837
FEMALES TCP concentrations (ng/g) in blood samples						
0	ND	ND	ND	ND	ND	ND
2	110	190	12	61	77	62
4	190	380	89	91	120	220
8	210	350	110	140	220	260
12	ND	310	110	130	230	230
24	189	220	130	140	210	220
36	179	150	190	110	200	230
48	180	140	180	91	190	230
72	110	59	160	46	130	150
96	88	31	140	25	64	83
120	58	17	120	14	41	49
144	35	ND	107	ND	22	27
168	23	ND	88	ND	14	19

Data from Tables 5 and 7 (pages 34 and 36) of MRID 45144101

Table I. Male and Female RBC AChE Activity (Phase 1 control)						
Subject #	2 (RR)	6 (QR)	8 (QR)	10 (QR)	13 (QQ)	17 (QQ)
MALES AChE (U/L)						
-10	8294	7810	6562	8327	6985	7139
0	9196	8921	6809	7821	8833	7277
2	8910	8558	6782	8019	8448	7420
4	8382	8580	6622	8118	8481	7502
8	8239	8701	6886	7986	8481	7755
12	8360	8635	6886	7876	8789	7711
24	8734	8723	6655	8426	8173	7502
36	8448	7700	6864	8052	7689	7288
48	7711	7964	6083	7678	8536	7057
72	8569	8921	6672	7920	8195	7244
96	8151	7536	6336	6771	8206	7524
120	8404	7799	6457	7321	8041	7194
144	7810	7733	6281	7134	7799	7139
168	8206	8778	6677	7623	8019	7315
Subject #	20 (QQ)	23 (QQ)	27 (QQ)	29 (QR)	32 (QQ)	34 (QR)
FEMALES AChE (U/L)						
-10	7178	8481	9724	8382	8294	8866
0	8239	8723	10208	7865	8723	7953
2	7568	9053	10010	8382	8932	7722
4	7953	9504	10076	8426	8855	7755
8	8239	9174	10373	8701	8569	7843
12	7898	8657	9713	8118	8085	7953
24	7645	8844	10098	8195	8481	7755
36	7249	8712	9284	7843	8261	7183
48	7931	8800	9603	8184	8008	7568
72	7843	8789	9416	8437	8822	7997
96	7415	8272	8800	7073	8305	7002
120	7513	8360	9053	8283	-	7249
144	7722	7975	9570	8206	-	7249
168	7689	8437	9317	7722	-	7013

Data from Table 5.1.1 (pages 57) of MRID 44811002

Table J. Male and Female RBC AChE Activity (Phase 2 control)						
Subject #	37 (QR)	39 (QQ)	41 (QQ)	44 (QR)	45 (QR)	46 (QR)
MALES AChE (U/L)						
-10	9878	8910	9240	10769	7387	9570
0	9361	8569	9592	10835	7486	9185
2	9394	8723	10197	10681	7898	8800
4	9757	8470	9240	10703	7590	9108
8	10318	8382	8998	10494	7645	9295
12	9999	8723	8998	10164	7613	9790
24	9680	8547	8789	10197	7810	9284
36	9669	8294	8910	10318	7453	9350
48	9713	8481	9119	10208	7645	9086
72	9482	8657	9394	10923	7975	10120
96	9306	8778	9460	10329	7810	9570
120	9427	8976	9504	10406	8096	9614
144	9416	8811	9174	9691	8184	10538
168	9823	8437	9548	10802	8041	9174
Subject #	50 (QQ)	52 (QQ)	53 (QR)	54 (QQ)	57 (RR)	60 (QQ)
FEMALES AChE (U/L)						
-10	8107	7975	8712	8470	8734	8910
0	8492	7744	8261	8602	9086	9273
2	8327	7623	8547	8294	9020	8855
4	8239	7645	8349	8558	8866	8624
8	8415	7865	9031	8558	9218	9207
12	8404	7854	8723	8327	8987	9240
24	8415	7293	8756	8437	9174	8987
36	8063	7810	8470	8228	8668	9152
48	8184	7854	8844	8327	8954	9108
72	9108	8096	9273	9108	9229	8833
96	8426	7623	8811	9108	8899	8855
120	8965	7810	8569	8646	9229	9053
144	7337	7854	9339	8415	8778	8844
168	8382	7634	8591	8382	9086	9218

Data from Table 9.1.1 (pages 77) of MRID 44811002

Table 1-A. MRID 45144101 Enzyme Status				
Subject # (dose sex)*	PON	CPOase	RBC ChE (-10 hr)	RBC ChE (0 hr)
QQ Subjects				
5 (0.5M)	317	8666	7865	7942
9 (0.5M)	417	10446	8294	8602
12 (0.5M)	250	5412	8877	9471
26 (0.5F)	373	8954	8063	8602
31 (0.5F)	261	6671	8800	9515
1 (1M)	317	6599	8272	9108
11 (1M)	361	7785	10307	10098
14 (1M)	367	8774	9823	10087
21 (1F)	467	11615	9416	9900
24 (1F)	295	7534	9295	9757
25 (1F)	339	7426	9031	9548
40 (2M)	345	8918	9680	10021
47 (2M)	456	10213	7887	7645
49 (2F)	367	9997	7832	7766
56 (2F)	367	9278	8426	8910
58 (2F)	389	10141	8041	8195
59 (2F)	345	8199	8063	8250
13 (C1M)	317	7678	6985	8833
17 (C1M)	311	8001	7139	7277
20 (C1F)	411	10015	7178	8239
23 (C1F)	284	6329	8481	8723
27 (C1F)	350	8217	9724	10208
32 (C1F)	434	9817	8294	8723
39 (C2M)	567	15894	8910	8569
41 (C2M)	378	9206	9240	9592
50 (C2F)	423	10141	8107	8492
52 (C2F)	456	10069	7975	7744
54 (C2F)	289	6904	8470	8602
60 (C2F)	367	9853	8910	9273
mean±s.d.	366±69	8936±1994	8531±824	8886±824
OR Subjects				
3 (0.5M)	706	6850	8393	8613
15 (0.5M)	745	6871	9713	9889
18 (0.5M)	562	5412	9405	9471
19 (0.5F)	595	8073	9724	7282
22 (0.5F)	717	6994	9086	9218
28 (0.5F)	895	8091	10010	9900
36 (0.5F)	1346	13341	7139	7156
7 (1M)	984	9008	9603	9713
16 (1M)	834	8325	8481	8756
30 (1F)	923	10141	9064	9130
33 (1F)	1040	8019	7942	8140
35 (1F)	756	7821	8250	8514
38 (2M)	1234	13018	9141	8283
42 (2M)	890	7048	9493	9372
43 (2M)	801	9134	8041	8118
48 (2M)	823	8199	8569	8206
51 (2F)	1234	10716	8283	7942
6 (C1M)	645	5430	7810	8921
8 (C1M)	728	6329	6562	6809
10 (C1M)	882	9350	8327	7821
29 (C1F)	834	9871	8382	7865
34 (C1F)	1207	10410	8866	7953
37 (C2M)	1001	9997	9878	9361
44 (C2M)	1045	9709	10769	10835

Table 1-A. MRID 45144101 Enzyme Status				
Subject # (dose sex)*	PON	CPOase	RBC ChE (-10 hr)	RBC ChE (0 hr)
45 (C2M)	1112	11723	7387	7486
46 (C2M)	1134	11363	9570	9185
53 (C2F)	1134	14096	8712	8261
mean±s.d.	918±211	8762±958	9086±2298	8600±956
RR Subjects				
4 (1M)	1479	8505	9416	9669
55 (2F)	1590	9422	10373	10076
2 (C1M)	1668	9565	8294	9196
57 (C2F)	2502	17333	8734	9086
mean±s.d.	1810±468	9204±906	9204±906	9506±456

dose (0.5, 1, 2 mg/kg); C1 (Phase 1 control); C2 (Phase 2 control); M (male); F (female)

Table 1-B. MRID 45144101 Enzyme Status (males)				
Subject # (dose)*	PON	CPOase	RBC ChE (-10 hr)	RBC ChE (0 hr)
QQ Subjects				
5 (0.5)	317	8666	7865	7942
9 (0.5)	417	10446	8294	8602
12 (0.5)	250	5412	8877	9471
1 (1)	317	6599	8272	9108
11 (1)	361	7785	10307	10098
14 (1)	367	8774	9823	10087
40 (2)	345	8918	9680	10021
47 (2)	456	10213	7887	7645
13 (C1)	317	7678	6985	8833
17 (C1)	311	8001	7139	7277
39 (C2)	567	15894	8910	8569
41 (C2)	378	9206	9240	9592
mean±s.d.	367±82	8966±2596	8606±1051	8937±966
QR Subjects				
3 (0.5)	706	6850	8393	8613
15 (0.5)	745	6871	9713	9889
18 (0.5)	562	5412	9405	9471
7 (1)	984	9008	9603	9713
16 (1)	834	8325	8481	8756
38 (2)	1234	13018	9141	8283
42 (2)	890	7048	9493	9372
43 (2)	801	9134	8041	8118
48 (2)	823	8199	8569	8206
6 (C1)	645	5430	7810	8921
8 (C1)	728	6329	6562	6809
10 (C1)	882	9350	8327	7821
37 (C2)	1001	9997	9878	9361
44 (C2)	1045	9709	10769	10835
45 (C2)	1112	11723	7387	7486
46 (C2)	1134	11363	9570	9185
mean±s.d.	882±189	8610±2238	8821±1070	8802±1006
RR Subjects				
4 (1)	1479	8505	9416	9669
2 (C1)	1668	9565	8294	9196
mean±s.d.	1574±134	9035±750	8855±793	9432±334

* dose (0.5, 1, 2 mg/kg); C1 (Phase 1 control); C2 (Phase 2 control);

Table 1-C. MRID 45144101 Enzyme Status (females)				
Subject # (dose)*	PON	CPOase	RBC ChE (-10 hr)	RBC ChE (0 hr)
QQ Subjects				
26 (0.5)	373	8954	8063	8602
31 (0.5)	261	6671	8800	9515
21 (1)	467	11615	9416	9900
24 (1)	295	7534	9295	9757
25 (1)	339	7426	9031	9548
49 (2)	367	9997	7832	7766
56 (2)	367	9278	8426	8910
58 (2)	389	10141	8041	8195
59 (2)	345	8199	8063	8250
20 (C1)	411	10015	7178	8239
23 (C1)	284	6329	8481	8723
27 (C1)	350	8217	9724	10208
32 (C1)	434	9817	8294	8723
50 (C2)	423	10141	8107	8492
52 (C2)	456	10069	7975	7744
54 (C2)	289	6904	8470	8602
60 (C2)	367	9853	8910	9273
mean±s.d.	366±61	8892±1514	8476±650	8850±738
OR Subjects				
19 (0.5)	595	8073	9724	7282
22 (0.5)	717	6994	9086	9218
28 (0.5)	895	8091	10010	9900
36 (0.5)	1346	13341	7139	7156
30 (1)	923	10141	9064	9130
33 (1)	1040	8019	7942	8140
35 (1)	756	7821	8250	8514
51 (2)	1234	10716	8283	7942
29 (C1)	834	9871	8382	7865
34 (C1)	1207	10410	8866	7953
53 (C2)	1134	14096	8712	8261
mean±s.d.	971±240	9779±2306	8678±810	8306±833
RR Subjects				
55 (2)	1590	9422	10373	10076
57 (C2)	2502	17333	8734	9086
mean±s.d.	2046±644	13378±5594	9554±1158	9581±700

* dose (0.5, 1, 2 mg/kg); C1 (Phase 1 control); C2 (Phase 2 control);

Table 1D. Male and Female Urine TCP Level (0.5 mg/kg)						
Subject #	3 (QR)	5 (QQ)	9 (QQ)	12 (QQ)	15 (QR)	18 (QR)
Time interval (hr)	MALES TCP concentrations (ng/mL) in urine samples					
-12-0	BLOQ	3.4	4.4	BLOQ	3.4	7.1
0-6	98	520	1396	152	417	200
6-12	593	724	1217	427	1256	482
12-24	964	907	940	678	1256	1388
24-36	636	1440	1512	712	687	836
36-48	981	739	1472	1239	ns	1688
48-60	1103	298	1108	1398	ns	1605
60-72	636	453	94.5	959	1389	690
72-84	496	360	600	680	465	500
84-96	278	70	316	422	ns	366
96-108	178	140	146	345	112	298
108-120	120	63	223	464	315	184
120-132	148	44	96	211	ns	196
132-144	161	9	56	115	190	136
144-156	98	9.3	11.4	122	ns	137
156-168	70	5.8	11	110	91	78
Subject #	19	22	26	28	31	36
	FEMALES TCP concentrations (ng/mL) in urine samples					
-12-0	19	BLOQ	5.2	4.5	BLOQ	2.4
0-6	618	1369	284	500	347	622
6-12	1292	719	344	238	393	468
12-24	4292	1578	2057	509	730	608
24-36	2065	490	716	360	365	671
36-48	974	755	805	366	590	726
48-60	1972	673	2012	162	169	232
60-72	2973	597	653	200	384	362
72-84	ns	359	691	66	230	514
84-96	919	159	1530	115	234	246
96-108	714	96	1090	50	57	554
108-120	688	112	1107	75	100	276
120-132	ns	38	356	41	42	130
132-144	711	12	1754	29	62	158
144-156	ns	84	1502	22	26	161
156-168	132	24	504	46	42	98

Data from Appendix Table 3 (pages 68 -70) of MRID 45144101; ns no sample;

Table 1E. Male and Female Urine TCP Level (1.0 mg/kg)						
Subject #	1 (QQ)	4 (RR)	7 (QR)	11 (QQ)	14 (QQ)	16 (QR)
Time interval (hr)	MALES TCP concentrations (ng/mL) in urine samples					
-12-0	3.4	5	3.2	5.3	8.8	3.4
0-6	496	212	1286	2128	4496	1614
6-12	1373	1779	2499	2764	7952	658
12-24	3217	1636	2941	4758	3602	716
24-36	2224	2034	3706	1967	3382	3666
36-48	2896	1334	1126	3109	4526	2370
48-60	928	2520	845	ns	2900	2486
60-72	1414	974	306	1790	3202	759
72-84	889	502	107	ns	2976	1579
84-96	816	1169	142	390	2455	1301
96-108	321	690	51	ns	ns	1418
108-120	142	807	44	174	808	590
120-132	220	308	9	ns	1254	1304
132-144	268	462	20	98	1216	299
144-156	134	362	8	ns	1137	360
156-168	74	70	8	ns	568	231
Subject #	21 (QQ)	24 (QQ)	25 (QQ)	30 (QR)	33 (QR)	35 (QR)
Time interval (hr)	FEMALES TCP concentrations (ng/mL) in urine samples					
-12-0	6.4	2.8	2.8	7.2	12.8	BLOQ
0-6	517	1126	808	722	169	390
6-12	2859	1784	1422	3332	737	466
12-24	2402	1302	1472	1914	1278	935
24-36	1240	1744	2341	2515	852	451
36-48	2593	2054	740	2642	1289	806
48-60	3114	1533	1118	2228	ns	324
60-72	716	1193	792	1562	752	424
72-84	1351	1626	706	1848	574	404
84-96	1885	1308	426	1148	598	191
96-108	402	466	218	1091	402	216
108-120	550	1027	192	1131	352	142
120-132	280	455	140	894	ns	161
132-144	264	300	76	766	336	110
144-156	52	136	56	592	168	98
156-168	184	220	48	556	204	49

Data from Appendix Table 4 (pages 71 -73) of MRID 45144101; ns no sample;

Table 1F. Male and Female Urine TCP Level (2.0 mg/kg)						
Subject #	38 (QR)	40 (QQ)	42 (QR)	43 (QR)	47 (QQ)	48 (QR)
Time interval (hr)	MALES TCP concentrations (ng/mL) in urine samples					
-12-0	4.8	BLOQ	BLOQ	8.4	7	3.0
0-6	1308	189	878	850	1506	949
6-12	2030	578	3282	1314	4704	784
12-24	2794	2224	6164	2672	15323	3360
24-36	3263	1196	4532	5188	5549	3262
36-48	2822	1931	2818	5725	8610	2662
48-60	2674	1218	3458	1688	8865	853
60-72	2216	730	1213	2344	8129	1848
72-84	1318	560	ns	1126	5416	752
84-96	1656	371	1556	1618	3905	659
96-108	900	572	ns	886	2444	427
108-120	542	454	2398	870	2342	722
120-132	501	184	1507	747	1298	428
132-144	464	185	622	794	1512	642
144-156	507	170	1707	659	1482	452
156-168	414	264	994	402	-	-
Subject #	49 (QQ)	51 (QR)	55 (RR)	56 (QQ)	58 (QQ)	59 (QQ)
Time interval (hr)	FEMALES TCP concentrations (ng/mL) in urine samples					
-12-0	4.4	10.9	5.1	10.9	4.5	4.2
0-6	882	1413	676	1246	1690	1881
6-12	2183	3688	1850	7966	994	4682
12-24	3310	6064	5275	8148	1868	5036
24-36	1453	1786	1658	6270	2304	6622
36-48	1897	3736	4537	7068	2458	3822
48-60	958	2114	1662	-	1538	2902
60-72	1130	1443	2548	-	1469	2370
72-84	645	1286	533	-	1496	1855
84-96	570	2526	354	-	1530	1198
96-108	218	1078	332	-	604	842
108-120	286	1014	448	-	631	1113
120-132	226	918	206	-	84	805
132-144	288	474	329	-	85	636
144-156	150	696	212	-	182	228
156-168	133	616	98	-	147	156

Data from Appendix Table 5 (pages 74 -76) of MRID 45144101; ns no sample;

Table K. Serum Paraoxonase/CPOase Activity, Phenotype, Amount of Chlorpyrifos Absorbed			
#/sex/phenotype	CPOase (U/L)	Paraoxonase (U/L)	Chlorpyrifos Absorbed (mg/kg)
0.5 mg/kg [range]			
3M (QR)	6850	706	0.101
5M (QQ)	8666	317	0.136
9M (QQ)	10446	417	0.099
12M (QQ)	5412	250	0.148
15M (QR)	6871	745	0.136
18M (QR)	5412	562	0.159
	7276±1963 (male)	500±204 (male)	130±0.024
19F (QR)	8073	595	0.222
22F (QR)	6994	717	0.159
26F (QQ)	8954	373	0.469
28F (QR)	8091	895	0.109
31F (QQ)	6671	261	0.151
36F (QR)	13341	1346	0.206
	8687±2424 (female)	698±391 (female)	0.219±0.128
mean±s.d.	7965±1536 (both)	599±315 (both)	0.175±0.100
1.0 mg/kg [range]			
1M (QQ)	6599	317	0.283
4M (RR)	8505	1479	0.237
7M (QR)	9008	984	0.286
11M (QQ)	7785	361	0.274
14M (QQ)	8774	367	0.490
16M (QR)	8325	834	0.335
	8166±874 (male)	724±464 (male)	0.324±0.099
21F (QQ)	11615	467	0.359
24F (QQ)	7534	295	0.341
25F (QQ)	7426	339	0.197
30F (QR)	10141	923	0.318
33F (QR)	8019	1040	0.136
35F (QR)	7821	756	0.425
	8754±1719 (female)	637±314 (female)	0.296±0.108
mean±s.d.	8463±1386 (both)	680±380 (both)	0.307±0.096
2.0 mg/kg [range]			
38M (QR)	13018	1234	0.640
40M (QQ)	8918	345	0.323
42M (QR)	7048	890	0.621
43M (QR)	9134	801	0.454
47M (QQ)	10213	456	1.130
48M (QR)	8199	823	0.498
	9422±2051 (male)	758±320 (male)	0.611±0.280
49F (QQ)	9997	367	0.392
51F (QR)	10716	1234	0.717
55F (RR)	9422	1590	0.616
56F (QQ)	9278	367	1.700
58F (QQ)	10141	389	0.449
59F (QQ)	8199	345	0.598
	9626±871 (female)	715±551 (female)	0.745±0.482
mean±s.d.	9523±1517 (both)	737±430 (both)	0.678±0.382

pages 48-50, 51, 55-57, and 76-77 (MRID 45144101); QQ (low); QR (mid); RR (high)

Summary Table 1-B. MRID 45144101 Enzyme Status (males)				
	PON (U/L)	CPOase (U/L)	RBC ChE (U/L -10)	RBC ChE (U/L 0 hr)
QQ Subjects				
Mean $\pm$ s.d.	367 $\pm$ 82	8966 $\pm$ 2596	8606 $\pm$ 1051	8937 $\pm$ 966
Range n=12	250-567	5412-15894	6985-10307	7277-10098
QR Subjects				
Mean $\pm$ s.d.	882 $\pm$ 189	8610 $\pm$ 2238	8821 $\pm$ 1070	8802 $\pm$ 1006
Range n=16	562-1234	5412-13018	6562-10769	6809-10835
RR Subjects				
Mean $\pm$ s.d.	1574 $\pm$ 134	9035 $\pm$ 750	8855 $\pm$ 793	9432 $\pm$ 334
Range n=2	1479-1668	8505-9565	8294-9416	9196-9669

Summary Table 1-A. MRID 45144101 Enzyme Status (females)				
	PON (U/L)	CPOase (U/L)	RBC ChE (U/L -10)	RBC ChE (U/L 0 hr)
QQ Subjects				
Mean $\pm$ s.d.	366 $\pm$ 61	8892 $\pm$ 1514	8476 $\pm$ 650	8850 $\pm$ 738
Range n=17	261-467	6329-11615	7178-9724	7744-10208
QR Subjects				
Mean $\pm$ s.d.	971 $\pm$ 240	9779 $\pm$ 2306	8678 $\pm$ 810	8306 $\pm$ 833
Range n=11	595-1346	6994-14096	7139-10010	7156-9900
RR Subjects				
Mean $\pm$ s.d.	2046 $\pm$ 644	13378 $\pm$ 5594	9554 $\pm$ 1158	9581 $\pm$ 700
Range n=2	1590-2502	9422-17333	8734-10373	9086-10076

Kisicki, *et al.* (1999)/Brzak (2000) human study

Details: All females (30) and 28 of the 30 males were Caucasian. There was one African American and one Asian. one control male was Asian (QR) and one 1.0 mg/kg male was African American (QQ). The PON activity for these two males: 882 U/L and 361 U/L, respectively, compared to the mean for QR of 882 $\pm$ 189 and QQ of 367 $\pm$ 82.