アクリル酸=2－ヒドロキシエチルのラットを用いた
経口投与によるがん原性試験(混水試験)報告書

試験番号：０３４７

TABLES

TABLES

TABLES (Continued)

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TABLE 1 SURVIVAL ANIMAL NUMBERS AND BODY WEIGHT CHANGES OF MALE RATS IN THE 2-YEAR DRINKING WATER STUDY OF 2-HYDROXYETHYL ACRYLATE

Group	Control		320 ppm			800 ppm			2000 ppm		
	<50>		<50>			<49>			<50>		
Week on Study	Survival No.	BW g	Survival No.	BW g	%	Survival No.	BW g	%	Survival No.	BW g	%
0	50	123 (50)	50	123 (50)	100	49	123 (49)	100	50	123 (50)	100
1	50	156 (50)	50	153 (50)	98	49	151 (49)	97 **	50	141 (50)	90 **
2	50	185 (50)	50	182 (50)	98	49	179 (49)	97 **	50	167 (50)	90 **
3	50	207 (50)	50	204 (50)	99	49	201 (49)	97 **	50	189 (50)	91 **
4	50	224 (50)	50	222 (50)	99	49	218 (49)	97 **	50	205 (50)	92 **
5	50	239 (50)	50	236 (50)	99	49	232 (49)	97 **	50	220 (50)	92 **
6	50	251 (50)	50	248 (50)	99	49	242 (49)	96 **	50	230 (50)	92 **
7	50	262 (50)	50	258 (50)	98	49	253 (49)	97 **	50	239 (50)	91 **
8	50	270 (50)	50	267 (50)	99	49	261 (49)	97 **	50	246 (50)	91 **
9	50	279 (50)	50	274 (50)	98	49	268 (49)	96 **	50	253 (50)	91 **
10	50	285 (50)	50	280 (50)	98	49	275 (49)	96 **	50	259 (50)	91 **
11	50	291 (50)	50	285 (50)	98	49	280 (49)	96 **	50	264 (50)	91 **
12	50	296 (50)	50	291 (50)	98	49	285 (49)	96 **	50	269 (50)	91 **
13	50	302 (50)	50	295 (50)	98 *	49	290 (49)	96 **	50	273 (50)	90 **
14	50	307 (50)	50	299 (50)	97 *	49	294 (49)	96 **	50	277 (50)	90 **
18	50	322 (50)	50	314 (50)	98 **	49	308 (49)	96 **	50	292 (50)	91 **
22	50	335 (50)	50	326 (50)	97 **	49	321 (49)	96 **	50	305 (50)	91 **
26	50	348 (50)	50	336 (50)	97 **	49	332 (49)	95 **	50	317 (50)	91 **
30	50	355 (50)	50	343 (50)	97 **	49	340 (49)	96 **	50	324 (50)	91 **
34	50	364 (50)	50	350 (50)	96 **	49	345 (49)	95 **	50	331 (50)	91 **
38	50	374 (50)	50	357 (50)	95 **	49	353 (49)	94 **	50	338 (50)	90 **
42	50	382 (50)	50	363 (50)	95 **	49	359 (49)	94 **	49	343 (49)	90 **
46	50	388 (50)	50	369 (50)	95 **	49	365 (49)	94 **	49	348 (49)	90 **
50	50	392 (50)	50	373 (50)	95 **	49	369 (49)	94 **	49	351 (49)	90 **
54	50	398 (50)	50	379 (50)	95 **	49	374 (49)	94 **	49	355 (49)	89 **
58	50	403 (50)	50	383 (50)	95 **	49	377 (49)	94 **	49	357 (49)	89 **
62	50	406 (50)	50	387 (50)	95 **	48	381 (48)	94 **	49	356 (49)	88 **
66	50	409 (50)	50	392 (50)	96 **	48	385 (48)	94 **	47	357 (47)	87 **
70	49	406 (49)	49	393 (49)	97 *	47	385 (47)	95 **	46	355 (46)	87 **
74	49	416 (49)	48	400 (48)	96 **	47	387 (47)	93 **	46	355 (46)	85 **
78	49	419 (49)	47	402 (47)	96 *	46	388 (46)	93 **	45	356 (45)	85 **
82	48	428 (48)	47	407 (47)	95 **	46	388 (46)	91 **	45	357 (45)	83 **
86	48	425 (48)	47	405 (47)	95 **	44	385 (44)	91 **	44	348 (44)	82 **
90	47	423 (47)	47	404 (47)	96 **	42	382 (42)	90 **	43	341 (43)	81 **
94	45	419 (45)	47	399 (47)	95 **	41	376 (41)	90 **	41	332 (41)	79 **
98	41	419 (41)	47	393 (47)	94 **	41	367 (41)	88 **	39	325 (39)	78 **
102	40	412 (40)	44	388 (44)	94 **	39	357 (39)	87 **	36	318 (36)	77 **
104	40	408 (40)	44	383 (44)	94 **	37	353 (37)	87 **	35	316 (35)	77 **

< > : No.of effective animals, ( ) : No.of measured animals % : % of control group
Significant Difference, * : p≦0.05, ** : p≦0.01, Test of Dunnett

TABLE 2 SURVIVAL ANIMAL NUMBERS AND BODY WEIGHT CHANGES OF FEMALE RATS IN THE 2-YEAR DRINKING WATER STUDY OF 2-HYDROXYETHYL ACRYLATE

Group	Control		320 ppm			800 ppm			2000 ppm		
	<50>		<50>			<50>			<50>		
Week on Study	Survival No.	BW g	Survival No.	BW g	%	Survival No.	BW g	%	Survival No.	BW g	%
0	50	96 (50)	50	96 (50)	100	50	96 (50)	100	50	96 (50)	100
1	50	115 (50)	50	113 (50)	98	50	112 (50)	97 **	50	108 (50)	94 **
2	50	126 (50)	50	124 (50)	98	50	123 (50)	98 *	50	119 (50)	94 **
3	50	134 (50)	50	132 (50)	99	50	132 (50)	99	50	127 (50)	95 **
4	50	140 (50)	50	138 (50)	99	50	138 (50)	99	50	132 (50)	94 **
5	50	147 (50)	50	146 (50)	99	50	144 (50)	98	50	137 (50)	93 **
6	50	151 (50)	50	149 (50)	99	50	149 (50)	99	50	141 (50)	93 **
7	50	154 (50)	50	153 (50)	99	50	152 (50)	99	50	143 (50)	93 **
8	50	157 (50)	50	156 (50)	99	50	155 (50)	99	50	146 (50)	93 **
9	50	160 (50)	50	160 (50)	100	50	158 (50)	99	50	149 (50)	93 **
10	50	163 (50)	50	163 (50)	100	50	161 (50)	99	50	150 (50)	92 **
11	50	166 (50)	50	165 (50)	99	50	164 (50)	99	50	154 (50)	93 **
12	50	168 (50)	50	168 (50)	100	50	167 (50)	99	50	155 (50)	92 **
13	50	170 (50)	50	171 (50)	101	50	169 (50)	99	50	158 (50)	93 **
14	50	171 (50)	50	173 (50)	101	50	171 (50)	100	50	159 (50)	93 **
18	50	179 (50)	50	180 (50)	101	50	177 (50)	99	50	165 (50)	92 **
22	50	185 (50)	50	187 (50)	101	50	184 (50)	99	50	171 (50)	92 **
26	50	189 (50)	50	191 (50)	101	50	188 (50)	99	50	175 (50)	93 **
30	50	194 (50)	50	197 (50)	102	50	193 (50)	99	50	179 (50)	92 **
34	50	198 (50)	50	200 (50)	101	50	195 (50)	98	50	181 (50)	91 **
38	50	200 (50)	50	204 (50)	102	50	197 (50)	99	50	183 (50)	92 **
42	50	205 (50)	50	208 (50)	101	50	201 (50)	98	50	186 (50)	91 **
46	50	210 (50)	50	212 (50)	101	50	205 (50)	98	50	188 (50)	90 **
50	49	213 (49)	50	215 (50)	101	49	208 (49)	98	50	191 (50)	90 **
54	49	217 (49)	50	219 (50)	101	49	212 (49)	98	50	193 (50)	89 **
58	49	220 (49)	50	223 (50)	101	49	215 (49)	98	50	194 (50)	88 **
62	49	224 (49)	49	228 (49)	102	48	219 (48)	98	50	195 (50)	87 **
66	49	230 (49)	49	233 (49)	101	48	223 (48)	97	50	198 (50)	86 **
70	48	234 (48)	49	234 (49)	100	48	225 (48)	96	50	199 (50)	85 **
74	47	241 (47)	48	241 (48)	100	48	229 (48)	95	50	199 (50)	83 **
78	47	247 (47)	48	247 (48)	100	48	233 (48)	94 *	50	202 (50)	82 **
82	46	253 (46)	48	254 (48)	100	47	240 (47)	95 *	49	206 (49)	81 **
86	44	257 (44)	48	255 (48)	99	47	242 (47)	94 *	47	210 (47)	82 **
90	42	262 (42)	47	257 (47)	98	47	242 (47)	92 **	46	211 (46)	81 **
94	42	262 (42)	46	257 (46)	98	46	243 (46)	93 **	46	211 (46)	81 **
98	40	265 (40)	45	257 (45)	97	44	242 (44)	91 **	46	212 (46)	80 **
102	37	268 (37)	40	264 (40)	99	42	242 (42)	90 **	46	212 (46)	79 **
104	37	266 (37)	40	261 (40)	98	42	240 (42)	90 **	42	208 (42)	78 **

< > : No.of effective animals, ( ) : No.of measured animals % : % of control group
Significant Difference, * : p≦0.05, ** : p≦0.01, Test of Dunnett

TABLE 3 WATER CONSUMPTION CHANGES OF MALE RATS
IN THE 2-YEAR DRINKING WATER STUDY OF 2-HYDROXYETHYL ACRYLATE

Group	Control		320 ppm				800 ppm				2000 ppm			
Week on Study	<50> Survival No.	WC g	<50> Survival No.	WC g	%		<49> Survival No.	WC g	%		<50> Survival No.	WC g	%	
1	50	18.0 (50)	50	15.6 (50)	87	**	49	14.2 (49)	79	**	50	11.7 (50)	65	**
2	50	18.8 (50)	50	16.8 (50)	89	**	49	15.1 (48)	80	**	50	12.1 (50)	64	**
3	50	20.3 (50)	50	16.9 (50)	83	**	49	15.4 (49)	76	**	50	13.3 (50)	66	**
4	50	19.9 (50)	50	17.3 (50)	87	**	49	15.5 (48)	78	**	50	13.4 (50)	67	**
5	50	18.9 (50)	50	16.4 (50)	87	**	49	14.9 (49)	79	**	50	12.8 (50)	68	**
6	50	18.6 (50)	50	16.1 (50)	87	**	49	14.6 (49)	78	**	50	12.2 (50)	66	**
7	50	18.5 (50)	50	16.9 (50)	91	**	49	14.5 (49)	78	**	50	12.2 (50)	66	**
8	50	18.2 (50)	50	16.4 (50)	90	**	49	13.9 (49)	76	**	50	11.6 (50)	64	**
9	50	17.9 (50)	50	15.8 (50)	88	**	49	13.9 (49)	78	**	50	11.9 (50)	66	**
10	50	17.8 (50)	50	16.0 (50)	90	**	49	14.6 (49)	82	**	50	12.1 (50)	68	**
11	50	17.1 (50)	50	15.2 (50)	89	**	49	13.5 (49)	79	**	50	11.6 (50)	68	**
12	50	16.9 (50)	50	15.0 (50)	89	**	49	13.6 (49)	80	**	50	11.5 (50)	68	**
13	50	17.7 (50)	50	16.0 (50)	90	**	49	14.2 (49)	80	**	50	11.8 (50)	67	**
14	50	17.5 (50)	50	15.3 (50)	87	**	49	13.9 (49)	79	**	50	11.7 (50)	67	**
18	50	16.5 (50)	50	14.8 (50)	90	**	49	13.8 (49)	84	**	50	11.7 (50)	71	**
22	50	16.2 (50)	50	14.9 (50)	92	**	49	13.1 (49)	81	**	50	11.4 (50)	70	**
26	50	16.7 (50)	50	14.6 (50)	87	**	49	13.3 (49)	80	**	50	11.6 (49)	69	**
30	50	16.5 (50)	50	15.0 (50)	91	**	49	13.5 (49)	82	**	50	11.6 (50)	70	**
34	50	16.5 (50)	50	14.4 (50)	87	**	49	13.3 (49)	81	**	50	11.7 (50)	71	**
38	50	16.4 (50)	50	14.4 (50)	88	**	49	13.6 (49)	83	**	50	12.3 (50)	75	**
42	50	16.3 (50)	50	14.4 (50)	88	**	49	13.7 (49)	84	**	49	12.0 (49)	74	**
46	50	16.4 (50)	50	14.7 (50)	90	**	49	13.7 (49)	84	**	49	12.6 (49)	77	**
50	50	16.5 (50)	50	15.4 (50)	93	**	49	14.1 (49)	85	**	49	12.6 (49)	76	**
54	50	17.5 (50)	50	15.8 (50)	90	**	49	14.9 (49)	85	**	49	13.1 (49)	75	**
58	50	16.8 (50)	50	15.3 (50)	91	**	49	14.5 (49)	86	**	49	12.8 (49)	76	**
62	50	17.5 (50)	50	15.9 (50)	91	**	48	15.4 (48)	88	**	49	13.5 (49)	77	**
66	50	17.0 (50)	50	15.7 (50)	92	**	48	15.0 (48)	88	**	47	13.3 (47)	78	**
70	49	18.6 (49)	49	16.6 (49)	89	**	47	15.7 (47)	84	**	46	13.7 (46)	74	**
74	49	18.3 (49)	48	16.4 (48)	90	**	47	15.5 (47)	85	**	46	13.7 (46)	75	**
78	49	18.3 (49)	47	16.4 (47)	90	**	46	15.3 (45)	84	**	45	13.7 (45)	75	**
82	48	17.8 (48)	47	16.4 (47)	92	**	46	15.3 (46)	86	**	45	13.6 (45)	76	**
86	48	18.0 (48)	47	16.2 (47)	90	**	44	15.1 (43)	84	**	44	13.7 (43)	76	**
90	47	18.4 (47)	47	16.7 (47)	91	**	42	16.4 (42)	89	**	43	14.1 (43)	77	**
94	45	18.9 (45)	47	17.0 (47)	90	**	41	16.5 (41)	87	**	41	14.1 (41)	75	**
98	41	19.7 (41)	47	17.2 (47)	87	**	41	17.4 (41)	88	**	39	15.3 (39)	78	**
102	40	20.4 (40)	44	17.7 (44)	87	**	39	17.6 (38)	86	**	36	15.8 (36)	77	**
104	40	20.4 (40)	44	17.5 (44)	86	**	37	17.7 (37)	87	**	35	15.8 (35)	77	**

< > : No.of effective animals, ( ) : No.of measured animals % : % of control group
Significant Difference, ** : p≦0.01, Test of Dunnett

TABLE 4 WATER CONSUMPTION CHANGES OF FEMALE RATS
IN THE 2-YEAR DRINKING WATER STUDY OF 2-HYDROXYETHYL ACRYLATE

Group	Control		320 ppm				800 ppm				2000 ppm			
Week on Study	<50> Survival No.	WC g	<50> Survival No.	WC g	%		<50> Survival No.	WC g	%		<50> Survival No.	WC g	%	
1	50	15.5 (50)	50	13.3 (50)	86	**	50	12.2 (50)	79	**	50	10.0 (50)	65	**
2	50	16.5 (49)	50	14.0 (50)	85	**	50	11.8 (50)	72	**	50	9.6 (50)	58	**
3	50	16.9 (47)	50	14.8 (50)	88	**	50	12.1 (49)	72	**	50	9.9 (50)	59	**
4	50	17.7 (49)	50	15.8 (48)	89	*	50	12.2 (50)	69	**	50	9.8 (50)	55	**
5	50	16.3 (48)	50	14.9 (50)	91	*	50	11.9 (50)	73	**	50	10.0 (50)	61	**
6	50	16.8 (48)	50	15.0 (49)	89	*	50	12.3 (49)	73	**	50	10.3 (50)	61	**
7	50	15.9 (46)	50	14.3 (50)	90	*	50	11.8 (50)	74	**	50	8.8 (50)	55	**
8	50	15.9 (46)	50	14.3 (48)	90	*	50	11.5 (50)	72	**	50	8.6 (50)	54	**
9	50	16.5 (48)	50	14.8 (46)	90		50	11.4 (47)	69	**	50	9.2 (50)	56	**
10	50	16.7 (48)	50	14.7 (47)	88	*	50	11.4 (48)	68	**	50	8.5 (50)	51	**
11	50	15.2 (48)	50	14.1 (48)	93		50	11.7 (49)	77	**	50	8.9 (50)	59	**
12	50	16.5 (48)	50	14.5 (48)	88	*	50	12.1 (48)	73	**	50	9.2 (50)	56	**
13	50	17.1 (49)	50	15.1 (46)	88		50	11.6 (49)	68	**	50	8.8 (50)	51	**
14	50	17.4 (50)	50	15.1 (46)	87	*	50	11.4 (48)	66	**	50	8.8 (50)	51	**
18	50	17.5 (46)	50	15.3 (47)	87		50	11.8 (48)	67	**	50	8.8 (50)	50	**
22	50	16.6 (47)	50	14.4 (44)	87	*	50	12.3 (49)	74	**	50	9.0 (50)	54	**
26	50	16.1 (49)	50	14.8 (49)	92		50	12.0 (50)	75	**	50	8.9 (50)	55	**
30	50	17.1 (49)	50	15.3 (47)	89		50	12.9 (50)	75	**	50	9.0 (50)	53	**
34	50	16.6 (50)	50	14.7 (49)	89		50	11.2 (49)	67	**	50	8.8 (50)	53	**
38	50	16.1 (49)	50	15.2 (50)	94		50	11.3 (49)	70	**	50	9.0 (48)	56	**
42	50	16.8 (50)	50	16.0 (50)	95		50	12.4 (50)	74	**	50	9.0 (50)	54	**
46	50	15.5 (49)	50	15.3 (50)	99		50	12.0 (50)	77	**	50	9.3 (50)	60	**
50	49	15.3 (49)	50	13.9 (50)	91		49	11.3 (49)	74	**	50	9.2 (50)	60	**
54	49	16.6 (49)	50	14.8 (50)	89		49	12.1 (49)	73	**	50	9.6 (50)	58	**
58	49	14.4 (49)	50	13.6 (50)	94		49	10.6 (49)	74	**	50	9.4 (50)	65	**
62	49	16.5 (49)	49	14.8 (49)	90		48	11.8 (48)	72	**	50	10.2 (50)	62	**
66	49	15.8 (47)	49	15.1 (49)	96		48	12.3 (48)	78	**	50	10.4 (50)	66	**
70	48	16.0 (48)	49	14.0 (49)	88	*	48	12.0 (48)	75	**	50	10.8 (50)	68	**
74	47	15.7 (47)	48	14.1 (48)	90		48	11.7 (48)	75	**	50	10.8 (50)	69	**
78	47	15.1 (47)	48	13.2 (47)	87	*	48	11.8 (48)	78	**	50	11.1 (50)	74	**
82	46	15.7 (46)	48	13.0 (48)	83	**	47	11.5 (47)	73	**	49	11.0 (49)	70	**
86	44	15.4 (43)	48	13.8 (48)	90	*	47	11.5 (47)	75	**	47	11.3 (47)	73	**
90	42	15.9 (40)	47	14.2 (47)	89	*	47	12.6 (47)	79	**	46	12.0 (46)	75	**
94	42	16.5 (42)	46	14.7 (46)	89	**	46	12.0 (46)	73	**	46	12.8 (46)	78	**
98	40	17.4 (40)	45	15.3 (45)	88	**	44	12.4 (44)	71	**	46	13.5 (46)	78	**
102	37	18.1 (36)	40	16.5 (40)	91	**	42	13.0 (42)	72	**	46	13.7 (46)	76	**
104	37	17.4 (37)	40	14.5 (40)	83	**	42	12.7 (42)	73	**	42	13.2 (42)	76	**

< > : No.of effective animals, ( ) : No.of measured animals % : % of control group
Significant Difference, * : $p \leqq 0.05$, ** : $p \leqq 0.01$, Test of Dunnett

TABLE 5 FOOD CONSUMPTION CHANGES OF MALE RATS IN THE 2-YEAR DRINKING WATER STUDY OF 2-HYDROXYETHYL ACRYLATE

Group	Control		320 ppm			800 ppm			2000 ppm		
	<50>		<50>			<49>			<50>		
Week on Study	Survival No.	FC g	Survival No.	FC g	FC %	Survival No.	FC g	FC %	Survival No.	FC g	FC %
1	50	14.3 (50)	50	13.6 (50)	100 *	49	13.7 (49)	96 *	50	11.9 (50)	83 **
2	50	15.4 (50)	50	15.1 (50)	98	49	14.6 (49)	95 **	50	13.4 (50)	87 **
3	50	15.9 (49)	50	15.5 (48)	97 *	49	15.2 (49)	96 **	50	14.2 (50)	89 **
4	50	15.8 (50)	50	15.5 (50)	98	49	15.2 (49)	96 **	50	14.3 (50)	91 **
5	50	15.6 (50)	50	15.2 (50)	97 *	49	14.9 (49)	96 **	50	14.3 (50)	92 **
6	50	15.1 (50)	50	14.7 (50)	97 *	49	14.4 (49)	95 **	50	13.8 (50)	91 **
7	50	15.5 (50)	50	15.0 (50)	97 *	49	14.7 (49)	95 **	50	14.0 (50)	90 **
8	50	14.9 (50)	50	14.4 (50)	97 **	49	14.1 (49)	95 **	50	13.5 (50)	91 **
9	50	14.9 (50)	50	14.4 (50)	97 *	49	14.1 (49)	95 **	50	13.6 (50)	91 **
10	50	14.7 (49)	50	14.2 (50)	97 *	49	13.9 (49)	95 **	50	13.1 (50)	89 **
11	50	14.5 (50)	50	14.1 (50)	97 *	49	13.7 (49)	94 **	50	13.3 (50)	92 **
12	50	14.2 (50)	50	13.8 (50)	97 *	49	13.5 (49)	95 **	50	13.3 (50)	94 **
13	50	14.4 (50)	50	13.8 (50)	96 **	49	13.8 (49)	96 **	50	13.3 (50)	92 **
14	50	14.0 (50)	50	13.4 (50)	96 **	49	13.5 (49)	96 **	50	12.9 (49)	92 **
18	50	14.6 (50)	50	14.2 (50)	97 *	49	13.9 (49)	95 **	50	13.5 (50)	92 **
22	50	14.6 (50)	50	14.0 (50)	96 **	49	14.0 (49)	96 **	50	13.6 (50)	93 **
26	50	15.4 (50)	50	14.7 (50)	95 **	49	14.5 (49)	94 **	50	14.2 (50)	92 **
30	50	14.9 (50)	50	14.4 (50)	97 **	49	14.4 (49)	97 *	50	14.1 (50)	95 **
34	50	15.4 (50)	50	14.7 (50)	95 **	49	14.7 (49)	95 **	50	14.7 (50)	95 **
38	50	15.6 (50)	50	14.6 (50)	94 **	49	14.8 (49)	95 **	50	14.9 (50)	96 **
42	50	15.6 (50)	50	14.7 (50)	94 **	49	15.2 (49)	97	49	14.9 (49)	96 *
46	50	15.4 (50)	50	14.8 (50)	96 **	49	15.0 (49)	97	49	15.1 (49)	98
50	50	15.5 (50)	50	14.9 (50)	96	49	15.1 (49)	97	49	15.2 (49)	98
54	50	15.9 (50)	50	15.1 (50)	95 **	49	15.3 (49)	96	49	15.2 (49)	96 **
58	50	15.8 (50)	50	15.1 (50)	96 **	49	15.5 (49)	98	49	15.0 (49)	95 **
62	50	15.8 (50)	50	15.2 (50)	96 **	48	15.4 (48)	97	49	14.8 (49)	94 **
66	50	15.5 (50)	50	15.2 (50)	98	48	15.4 (48)	99	47	14.9 (47)	96 **
70	49	16.2 (49)	49	15.5 (49)	96 **	47	15.8 (47)	98	46	15.3 (46)	94 **
74	49	16.2 (49)	48	15.7 (48)	97	47	15.6 (47)	96 *	46	15.2 (46)	94 **
78	49	15.9 (49)	47	15.2 (47)	96 **	46	15.5 (46)	97	45	15.0 (45)	94 **
82	48	15.9 (48)	47	15.4 (47)	97	46	15.5 (46)	97	45	15.1 (45)	95 **
86	48	15.8 (48)	47	15.4 (47)	97	44	15.6 (44)	99	44	15.0 (44)	95 **
90	47	15.7 (47)	47	15.4 (47)	98	42	15.2 (42)	97	43	14.8 (43)	94 **
94	45	15.9 (45)	47	15.7 (47)	99	41	15.7 (41)	99	41	15.0 (41)	94 **
98	41	16.2 (41)	47	15.4 (47)	95	41	15.1 (41)	93 *	39	14.5 (39)	90 **
102	40	16.4 (40)	44	15.6 (44)	95	39	15.2 (39)	93 *	36	14.9 (36)	91 **
104	40	15.7 (40)	44	15.2 (44)	97	37	15.1 (37)	96	35	14.7 (35)	94

< > : No.of effective animals, ( ) : No.of measured animals % : % of control group
Significant Difference, * : p≦0.05, ** : p≦0.01, Test of Dunnett

TABLE 6 FOOD CONSUMPTION CHANGES OF FEMALE RATS
IN THE 2-YEAR DRINKING WATER STUDY OF 2-HYDROXYETHYL ACRYLATE

Group	Control		320 ppm			800 ppm			2000 ppm		
	<50>		<50>			<50>			<50>		
Week on Study	Survival No.	FC g	Survival No.	FC g	FC %	Survival No.	FC g	FC %	Survival No.	FC g	FC %
1	50	10.6 (50)	50	10.4 (50)	98	50	10.1 (50)	95 **	50	9.2 (50)	87 **
2	50	10.5 (50)	50	10.6 (50)	101	50	10.1 (50)	96 **	50	9.7 (50)	92 **
3	50	10.8 (50)	50	10.6 (50)	98	50	10.5 (50)	97	50	10.0 (50)	93 **
4	50	10.9 (50)	50	10.7 (50)	98	50	10.4 (50)	95 **	50	10.1 (50)	93 **
5	50	10.7 (50)	50	10.7 (50)	100	50	10.3 (50)	96 *	50	9.9 (50)	93 **
6	50	10.3 (50)	50	10.3 (50)	100	50	10.0 (50)	97	50	9.4 (50)	91 **
7	50	10.2 (50)	50	10.2 (50)	100	50	10.0 (50)	98	50	9.3 (50)	91 **
8	50	9.9 (50)	50	9.8 (50)	99	50	9.6 (50)	97	50	9.1 (50)	92 **
9	50	10.1 (50)	50	10.0 (50)	99	50	9.5 (50)	94 **	50	9.0 (50)	89 **
10	50	9.8 (50)	50	9.8 (50)	100	50	9.5 (50)	97	50	8.7 (50)	89 **
11	50	9.8 (50)	50	9.8 (50)	100	50	9.5 (50)	97	50	8.7 (50)	89 **
12	50	9.8 (50)	50	9.8 (50)	100	50	9.6 (50)	98	50	8.8 (50)	90 **
13	50	9.7 (50)	50	10.0 (50)	103	50	9.6 (50)	99	50	8.8 (50)	91 **
14	50	9.7 (50)	50	9.9 (50)	102	50	9.6 (50)	99	50	9.0 (50)	93 **
18	50	10.3 (49)	50	10.2 (50)	99	50	9.9 (50)	96 *	50	9.1 (50)	88 **
22	50	10.1 (50)	50	10.3 (50)	102	50	10.0 (50)	99	50	9.3 (50)	92 **
26	50	10.2 (50)	50	10.3 (50)	101	50	10.1 (50)	99	50	9.5 (50)	93 **
30	50	10.6 (50)	50	10.8 (50)	102	50	10.4 (50)	98	50	9.6 (50)	91 **
34	50	10.5 (49)	50	10.7 (50)	102	50	10.2 (50)	97	50	9.6 (50)	91 **
38	50	10.6 (50)	50	10.9 (50)	103	50	10.2 (50)	96	50	9.8 (48)	92 **
42	50	10.7 (49)	50	10.9 (50)	102	50	10.5 (50)	98	50	10.0 (50)	93 **
46	50	10.8 (50)	50	11.0 (50)	102	50	10.8 (50)	100	50	10.0 (50)	93 **
50	49	10.7 (49)	50	10.9 (50)	102	49	10.4 (49)	97	50	9.9 (50)	93 **
54	49	11.2 (49)	50	11.4 (50)	102	49	11.0 (49)	98	50	10.3 (50)	92 **
58	49	10.9 (49)	50	11.0 (50)	101	49	10.6 (49)	97	50	9.9 (50)	91 **
62	49	11.3 (49)	49	11.4 (49)	101	48	11.0 (48)	97	50	10.3 (50)	91 **
66	49	11.5 (49)	49	11.8 (49)	103	48	11.0 (48)	96	50	10.4 (50)	90 **
70	48	11.4 (48)	49	11.4 (49)	100	48	11.1 (48)	97	50	10.4 (50)	91 **
74	47	11.7 (47)	48	11.9 (48)	102	48	11.1 (48)	95 *	50	10.3 (50)	88 **
78	47	11.9 (47)	48	11.7 (48)	98	48	11.1 (48)	93 **	50	10.1 (50)	85 **
82	46	11.6 (46)	48	11.9 (48)	103	47	11.4 (47)	98	49	10.6 (49)	91 **
86	44	11.7 (44)	48	11.8 (48)	101	47	11.2 (47)	96 **	47	10.8 (47)	92 **
90	42	11.8 (42)	47	11.7 (47)	99	47	11.1 (47)	94 **	46	10.4 (46)	88 **
94	42	11.8 (42)	46	11.9 (46)	101	46	11.4 (46)	97	46	10.7 (46)	91 **
98	40	12.0 (40)	45	11.6 (45)	97	44	11.0 (44)	92 **	46	10.9 (46)	91 **
102	37	12.1 (37)	40	12.0 (40)	99	42	11.3 (42)	93 *	46	10.6 (46)	88 **
104	37	11.6 (37)	40	11.5 (40)	99	42	11.0 (42)	95	42	10.6 (42)	91 *

< > : No.of effective animals, ( ) : No.of measured animals % : % of control group
Significant Difference, * : p≦0.05, ** : p≦0.01, Test of Dunnett

TABLE 7 INCIDENCE AND TIME OF MASS OCCURRENCE IN CLINICAL OBSERVATION OF MALE RATS IN THE 2-YEAR DRINKING WATER STUDY OF 2-HYDROXYETHYL ACRYLATE

Time of mass occurrence (week)	0-13	14-26	27-39	40-52	53-65	66-78	79-91	92-104	0-104
External mass									
Control	0/50	0/50	0/50	0/50	2/50	1/50	6/49	16/47	17/50 (6/10)
320 ppm	0/50	0/50	0/50	0/50	1/50	1/50	6/47	14/47	14/50 (1/ 6)
800 ppm	0/49	0/49	0/49	1/49	2/49	2/48	6/47	10/42	13/49 (5/12)
2000 ppm	0/50	0/50	0/50	2/50	2/49	1/47	3/45	7/42	9/50 (2/15)
Internal mass									
Control	0/50	0/50	0/50	0/50	0/50	0/50	0/49	2/47	2/50 (1/10)
320 ppm	0/50	0/50	0/50	0/50	0/50	0/50	0/47	1/47	1/50 (0/ 6)
800 ppm	0/49	0/49	0/49	0/49	0/49	0/48	0/47	0/42	0/49 (0/12)
2000 ppm	0/50	0/50	0/50	0/50	0/49	0/47	0/45	0/42	0/50 (0/15)

No. of animals with mass / No. of survival animals at first week on each period.
(No. of dead and moribund animals with mass / No. of dead and moribund animals)

TABLE 8 INCIDENCE AND TIME OF MASS OCCURRENCE IN CLINICAL OBSERVATION OF FEMALE RATS IN THE 2-YEAR DRINKING WATER STUDY OF 2-HYDROXYETHYL ACRYLATE

Time of mass occurrence (week)	0-13	14-26	27-39	40-52	53-65	66-78	79-91	92-104	0-104
External mass									
Control	0/50	0/50	0/50	1/50	1/49	2/49	3/46	4/42	6/50 (3/13)
320 ppm	0/50	0/50	0/50	0/50	0/50	1/49	2/48	3/47	3/50 (1/10)
800 ppm	0/50	0/50	0/50	0/50	0/49	2/48	6/48	9/46	10/50 (1/ 8)
2000 ppm	0/50	0/50	0/50	0/50	0/50	1/50	4/50	7/46	7/50 (1/ 8)
Internal mass									
Control	0/50	0/50	0/50	0/50	0/49	1/49	1/46	1/42	3/50 (3/13)
320 ppm	0/50	0/50	0/50	0/50	0/50	0/49	0/48	1/47	1/50 (1/10)
800 ppm	0/50	0/50	0/50	0/50	0/49	0/48	0/48	0/46	0/50 (0/ 8)
2000 ppm	0/50	0/50	0/50	0/50	0/50	0/50	0/50	0/46	0/50 (0/ 8)

No. of animals with mass / No. of survival animals at first week on each period.
(No. of dead and moribund animals with mass / No. of dead and moribund animals)

TABLE 9 HEMATOLOGY OF MALE RATS IN THE 2-YEAR DRINKING WATER STUDY OF 2-HYDROXYETHYL ACRYLATE (SELECTED)

Group	Control	320 ppm		800 ppm		2000 ppm	
No. of animals examined	40	44		37		34	
Red blood cell ($10^6/\mu L$)	8.00 ± 1.60	8.50 ± 1.26		8.36 ± 1.38		8.47 ± 1.60	
Hemoglobin (g/dL)	13.5 ± 2.8	14.1 ± 1.8		13.7 ± 2.1		13.4 ± 2.4	
Hematocrit (%)	41.2 ± 7.2	42.9 ± 4.7		42.0 ± 5.3		41.8 ± 6.6	
MCV (fL)	52.2 ± 6.5	51.0 ± 5.7	*	50.9 ± 5.2	**	49.9 ± 3.9	**
MCH (pg)	17.0 ± 1.6	16.8 ± 1.6		16.5 ± 1.1	*	15.9 ± 1.0	**
MCHC (g/dL)	32.6 ± 1.7	32.9 ± 1.1		32.5 ± 1.6		32.0 ± 1.2	**
Platelet ($10^3/\mu L$)	891 ± 277	861 ± 228		932 ± 148		856 ± 163	
WBC ($10^3/\mu L$)	8.19 ± 11.57	7.02 ± 2.63		6.96 ± 2.68		11.15 ± 23.07	

Data represent means ± S.D.
Significant difference, * : p≦0.05, ** : p≦0.01, Test of Dunnett

TABLE 10 HEMATOLOGY OF FEMALE RATS IN THE 2-YEAR DRINKING WATER STUDY OF 2-HYDROXYETHYL ACRYLATE (SELECTED)

Group	Control	320 ppm	800 ppm		2000 ppm	
No. of animals examined	37	37	41		42	
Red blood cell ($10^6/\mu L$)	8.11 ± 0.74	8.00 ± 0.85	7.14 ± 1.92	**	7.09 ± 1.05	**
Hemoglobin (g/dL)	14.8 ± 1.3	14.6 ± 1.3	13.1 ± 3.3	**	13.1 ± 1.5	**
Hematocrit (%)	43.6 ± 2.9	43.1 ± 3.3	39.2 ± 8.5	**	39.5 ± 4.0	**
MCV (fL)	53.9 ± 2.4	54.2 ± 3.2	57.3 ± 10.6		56.4 ± 4.6	**
MCH (pg)	18.3 ± 0.5	18.3 ± 0.8	18.7 ± 2.5		18.7 ± 1.2	
MCHC (g/dL)	34.0 ± 0.9	33.9 ± 0.7	33.0 ± 2.3	**	33.2 ± 0.8	**
Platelet ($10^3/\mu L$)	618 ± 103	645 ± 93	641 ± 169	*	718 ± 77	**
WBC ($10^3/\mu L$)	13.51 ± 59.34	4.04 ± 5.69	5.03 ± 11.32		4.79 ± 13.31	

Data represent means ± S.D.
Significant difference, * : p≦0.05, ** : p≦0.01, Test of Dunnett

TABLE 11 BIOCHEMISTRY OF MALE RATS IN THE 2-YEAR DRINKING WATER STUDY OF 2-HYDROXYETHYL ACRYLATE

Group	Control	320 ppm		800 ppm		2000 ppm	
No. of animals examined	40	44		37		34	
Total protein (g/dL)	6.5 ± 0.5	6.7 ± 0.4	**	6.6 ± 0.4		6.5 ± 0.3	
Albumin (g/dL)	3.3 ± 0.4	3.4 ± 0.3		3.3 ± 0.3		3.4 ± 0.2	
A/G ratio	1.1 ± 0.1	1.1 ± 0.2		1.0 ± 0.1		1.1 ± 0.1	
T-Bilirubin (mg/dL)	0.22 ± 0.44	0.66 ± 3.18	*	0.22 ± 0.15	**	0.33 ± 0.35	**
Glucose (mg/dL)	153 ± 18	155 ± 19		142 ± 24	*	146 ± 17	
T-Cholesterol (mg/dL)	164 ± 42	218 ± 50	**	252 ± 72	**	285 ± 43	**
Triglyceride (mg/dL)	73 ± 51	108 ± 83	*	115 ± 82	**	195 ± 148	**
Phospholipid (mg/dL)	232 ± 71	301 ± 70	**	341 ± 87	**	409 ± 67	**
GOT (IU/L)	95 ± 62	106 ± 87		104 ± 24	*	171 ± 69	**
GPT (IU/L)	41 ± 16	52 ± 50		47 ± 15		66 ± 19	**
LDH (IU/L)	208 ± 58	196 ± 39		177 ± 42	**	193 ± 134	**
ALP (IU/L)	231 ± 115	283 ± 95	*	335 ± 116	**	484 ± 171	**
γ-GTP (IU/L)	12 ± 8	24 ± 11	**	46 ± 29	**	111 ± 33	**
CPK (IU/L)	106 ± 73	94 ± 14		94 ± 21		107 ± 71	
Urea nitrogen (mg/L)	19.2 ± 6.9	18.7 ± 3.1		21.4 ± 4.0	**	23.0 ± 4.0	**
Creatinine (mg/dL)	0.5 ± 0.1	0.5 ± 0.1		0.6 ± 0.1		0.5 ± 0.1	
Sodium (mEq/L)	142 ± 2	141 ± 2		141 ± 1	**	140 ± 1	**
Potassium (mEq/L)	3.7 ± 0.4	3.8 ± 0.5		3.8 ± 0.4		4.0 ± 0.4	*
Chloride (mEq/L)	107 ± 2	105 ± 2	**	105 ± 2	**	105 ± 2	*
Calcium (mg/dL)	10.2 ± 0.4	10.2 ± 0.9		10.3 ± 0.3	*	10.4 ± 0.3	**
Inorganic phosphorus (mg/dL)	4.3 ± 0.7	4.3 ± 1.3		4.4 ± 0.5		4.2 ± 0.5	

Data represent means ± S.D.
Significant difference, * : $p \leqq 0.05$, ** : $p \leqq 0.01$, Test of Dunnett

TABLE 12 BIOCHEMISTRY OF FEMALE RATS IN THE 2-YEAR DRINKING WATER STUDY OF 2-HYDROXYETHYL ACRYLATE

Group	Control	320 ppm		800 ppm		2000 ppm	
No. of animals examined	37	37		41		42	
Total protein (g/dL)	6.9 ± 0.5	6.8 ± 0.4		6.7 ± 0.5		6.3 ± 0.4	**
Albumin (g/dL)	3.9 ± 0.3	3.9 ± 0.2		3.9 ± 0.3		3.8 ± 0.2	**
A/G ratio	1.3 ± 0.1	1.3 ± 0.1		1.4 ± 0.1		1.5 ± 0.2	**
T-Bilirubin (mg/dL)	0.17 ± 0.11	0.16 ± 0.2		0.47 ± 1.42		0.17 ± 0.11	
Glucose (mg/dL)	145 ± 13	150 ± 14		140 ± 22		144 ± 16	
T-Cholesterol (mg/dL)	130 ± 26	140 ± 29		154 ± 36	**	155 ± 23	**
Triglyceride (mg/dL)	64 ± 54	62 ± 44		92 ± 98		75 ± 116	
Phospholipid (mg/dL)	231 ± 48	235 ± 46		263 ± 63	*	261 ± 43	*
GOT (IU/L)	159 ± 111	110 ± 39		172 ± 199		120 ± 79	*
GPT (IU/L)	63 ± 35	45 ± 18	*	52 ± 41	*	42 ± 17	**
LDH (IU/L)	330 ± 225	263 ± 78		379 ± 378		261 ± 104	
ALP (IU/L)	125 ± 75	115 ± 34		144 ± 101		154 ± 58	**
γ-GTP (IU/L)	5 ± 4	5 ± 2		8 ± 6	*	12 ± 8	**
CPK (IU/L)	150 ± 290	96 ± 21		158 ± 320		110 ± 47	
Urea nitrogen (mg/L)	17.3 ± 1.7	17.4 ± 5.8		17.5 ± 3.1		20.3 ± 3.2	**
Creatinine (mg/dL)	0.5 ± 0.1	0.5 ± 0.1		0.5 ± 0.1		0.5 ± 0.1	
Sodium (mEq/L)	140 ± 1	140 ± 2		140 ± 2		140 ± 2	
Potassium (mEq/L)	3.8 ± 0.5	3.7 ± 0.4		3.9 ± 0.4		4.0 ± 0.5	*
Chloride (mEq/L)	105 ± 2	105 ± 2		105 ± 3		106 ± 2	
Calcium (mg/dL)	10.2 ± 0.3	10.1 ± 0.4		10.2 ± 0.4		10.1 ± 0.3	
Inorganic phosphorus (mg/dL)	4.0 ± 0.8	3.9 ± 0.8		4.2 ± 0.6		4.4 ± 0.5	*

Data represent means ± S.D.

Significant difference, * : p≦0.05, ** : p≦0.01, Test of Dunnett

TABLE 13 URINALYSIS OF MALE RATS IN THE 2-YEAR DRINKING WATER STUDY OF 2-HYDROXYETHYL ACRYLATE (SELECTED)

Group		Control	320 ppm	800 ppm	2000 ppm
No. of animals examined		40	44	38	35
pH	6.0	1	0 **	2	2
	6.5	3	0	3	0
	7.0	12	5	7	6
	7.5	20	22	14	16
	8.0	3	16	12	11
	8.5	1	1	0	0
	(Grade)				
Protein	−	0	0	0 **	0
	±	0	0	0	0
	+	0	0	0	0
	2+	2	2	0	0
	3+	27	21	12	18
	4+	11	21	26	17
Occult blood	−	39	42	37	27 *
	±	1	0	0	2
	+	0	0	0	0
	2+	0	1	1	3
	3+	0	1	0	3

Significant difference, * : p≦0.05, ** : p≦0.01 Chi square test

TABLE 14 URINALYSIS OF FEMALE RATS IN THE 2-YEAR DRINKING WATER STUDY OF 2-HYDROXYETHYL ACRYLATE (SELECTED)

Group		Control	320 ppm	800 ppm	2000 ppm
No. of animals examined		37	40	42	45
pH	6.0	0	0	0	1
	6.5	3	2	5	12
	7.0	11	11	12	8
	7.5	12	13	13	10
	8.0	9	13	10	13
	8.5	2	1	2	1
	(Grade)				
Protein	−	0	0 **	0 **	0 **
	±	2	0	0	0
	+	10	1	0	1
	2+	16	16	9	6
	3+	6	11	21	27
	4+	3	12	12	11
Occult blood	−	35	37	30 *	9 **
	±	1	1	4	2
	+	0	0	0	0
	2+	1	1	0	0
	3+	0	1	8	34

Significant difference, * : p≦0.05, ** : p≦0.01 Chi square test

TABLE 15 ORGAN WEIGHTS OF MALE RATS IN THE 2-YEAR DRINKING WATER STUDY OF 2-HYDROXYETHYL ACRYLATE

Group		Control	320 ppm	800 ppm	2000 ppm
No. of animals examined		<40>	<44>	<37>	<35>
Adrenal	(g)	0.070 ± 0.015	0.081 ± 0.066	0.083 ± 0.121	0.090 ± 0.170 *
	(%)	0.018 ± 0.003	0.023 ± 0.019	0.027 ± 0.048	0.030 ± 0.054 **
Testis	(g)	2.665 ± 1.057	2.599 ± 1.004	2.597 ± 0.877	2.787 ± 0.748
	(%)	0.706 ± 0.295	0.726 ± 0.275	0.782 ± 0.231	0.937 ± 0.213 **
Heart	(g)	1.178 ± 0.118	1.127 ± 0.105	1.103 ± 0.091 **	1.023 ± 0.089 **
	(%)	0.309 ± 0.035	0.316 ± 0.032	0.338 ± 0.051 **	0.350 ± 0.049 **
Lung	(g)	1.442 ± 0.373	1.370 ± 0.155	1.347 ± 0.168	1.377 ± 0.400 **
	(%)	0.380 ± 0.125	0.385 ± 0.057	0.415 ± 0.094 **	0.486 ± 0.261 **
Kidney	(g)	2.515 ± 0.197	2.666 ± 0.276 **	2.764 ± 0.210 **	2.791 ± 0.217 **
	(%)	0.660 ± 0.071	0.750 ± 0.117 **	0.846 ± 0.108 **	0.956 ± 0.150 **
Spleen	(g)	1.570 ± 3.764	1.566 ± 3.674	1.035 ± 0.762	1.380 ± 2.353
	(%)	0.442 ± 1.186	0.456 ± 1.151	0.314 ± 0.232 *	0.469 ± 0.805 **
Liver	(g)	10.574 ± 2.260	11.038 ± 1.625	11.425 ± 1.535 **	11.545 ± 2.291 **
	(%)	2.770 ± 0.669	3.091 ± 0.485 **	3.473 ± 0.403 **	3.922 ± 0.757 **
Brain	(g)	2.017 ± 0.063	2.020 ± 0.050	2.023 ± 0.053	2.019 ± 0.054
	(%)	0.530 ± 0.048	0.568 ± 0.051 *	0.619 ± 0.065 **	0.693 ± 0.105 **

Data represent means ± S.D.

Significant difference, * : p≦0.05, ** : p≦0.01, Test of Dunnett

TABLE 16 ORGAN WEIGHTS OF FEMALE RATS IN THE 2-YEAR DRINKING WATER STUDY OF 2-HYDROXYETHYL ACRYLATE

Group		Control	320 ppm	800 ppm	2000 ppm
No. of animals examined		<37>	<40>	<42>	<42>
Adrenal	(g)	0.067 ± 0.011	0.067 ± 0.009	0.065 ± 0.010	0.058 ± 0.013 **
	(%)	0.027 ± 0.004	0.027 ± 0.004	0.029 ± 0.005	0.030 ± 0.010
Ovaries	(g)	0.129 ± 0.019	0.135 ± 0.033	0.142 ± 0.102	0.122 ± 0.027
	(%)	0.052 ± 0.009	0.056 ± 0.016	0.063 ± 0.040	0.063 ± 0.015 **
Heart	(g)	0.842 ± 0.100	0.837 ± 0.077	0.818 ± 0.092	0.745 ± 0.050 **
	(%)	0.340 ± 0.040	0.344 ± 0.027	0.370 ± 0.074 *	0.385 ± 0.035 **
Lung	(g)	1.066 ± 0.186	1.046 ± 0.191	1.030 ± 0.157	0.949 ± 0.115 **
	(%)	0.431 ± 0.079	0.434 ± 0.109	0.466 ± 0.104	0.492 ± 0.077 *
Kidney	(g)	1.666 ± 0.103	1.897 ± 0.300 **	1.902 ± 0.230 **	1.786 ± 0.128 **
	(%)	0.672 ± 0.046	0.784 ± 0.157 **	0.854 ± 0.116 **	0.924 ± 0.086 **
Spleen	(g)	0.854 ± 1.247	0.743 ± 0.869	1.313 ± 2.631	0.599 ± 0.406
	(%)	0.346 ± 0.488	0.308 ± 0.374	0.619 ± 1.269	0.315 ± 0.230 *
Liver	(g)	6.493 ± 1.190	6.592 ± 1.002	6.702 ± 1.160	6.347 ± 0.981
	(%)	2.606 ± 0.388	2.697 ± 0.283	2.996 ± 0.503 **	3.277 ± 0.512 **
Brain	(g)	1.861 ± 0.047	1.848 ± 0.042	1.835 ± 0.046 *	1.835 ± 0.039 *
	(%)	0.754 ± 0.078	0.766 ± 0.097	0.830 ± 0.118 **	0.953 ± 0.104 **

Data represent means ± S.D.

Significant difference, * : p≦0.05, ** : p≦0.01, Test of Dunnett

TABLE 17 NEOPLASTIC LESIONS OF MALE RATS IN THE 2-YEAR DRINKING WATER STUDY OF 2-HYDROXYETHYL ACRYLATE (SELECTED)

Group	Control	320 ppm	800 ppm	2000 ppm		
No. of animals examined	<50>	<50>	<49>	<50>		
Skin						
Keratoacanthoma	3 (6%) [a]	2 (4%)	1 (2%)	2 (4%)		
Squamous cell papilloma	1 (2%)	2 (4%)	1 (2%)	1 (2%)		
Subcutis						
Fibroma	7 (14%)	2 (4%)	4 (8%)	3 (6%)		
Lung						
Bronchiolar-alveolar adenoma	1 (2%)	3 (6%)	2 (4%)	1 (2%)		
Spleen						
Mononuclear cell leukemia	6 (12%)	4 (8%)	6 (12%)	5 (10%)		
Stomach						
Squamous cell papilloma	1 (2%)	1 (2%)	0 (0%)	0 (0%)		
Squamous cell carcinoma	0 (0%)	0 (0%)	0 (0%)	1 (2%)		
Liver						
Hepatocellular adenoma	1 (2%)	4 (8%)	4 (8%)	10 (20%) **	⬆⬆	⇧⇧
Pituitary						
Adenoma	21 (42%)	22 (44%)	14 (29%)	13 (26%)		⇩
Thyroid						
C-cell adenoma	7 (14%)	10 (20%)	6 (12%)	11 (22%)		
Follicular adenoma	0 (0%)	0 (0%)	1 (2%)	2 (4%)		
Follicular adenocarcinoma	0 (0%)	1 (2%)	0 (0%)	1 (2%)		
Follicular adenoma / adenocarcinoma	0 (0%)	1 (2%)	1 (2%)	3 (6%)	⬆	
Testis						
Interstitial cell tumor	28 (56%)	31 (62%)	35 (71%)	35 (70%)	⬆	

a) : No. of animals with bearing tumor (incidence ; %)

** : Statistically differenct from control group at p≦0.01 by Fisher exact test

⬆ and ⬆⬆ : The trend of treated groups statistically different from control group at p≦0.05 and p≦0.01 by Peto test, respectively.

⇩ and ⇧⇧ : The trend of treated groups statistically different from control group at p≦0.05 and p≦0.01 by Cochran-Armitage test, respectively.

(Study No. 0347)

TABLE 18 NEOPLASTIC LESIONS OF FEMALE RATS IN THE 2-YEAR DRINKING WATER STUDY OF 2-HYDROXYETHYL ACRYLATE (SELECTED)

Group No. of animals examined	Control <50>	320 ppm <50>	800 ppm <50>	2000 ppm <50>		
Spleen						
Mononuclear cell leukemia	7 (14%) [a]	6 (12%)	6 (12%)	8 (16%)		
Stomach						
Squamous cell papilloma	0 (0%)	1 (2%)	0 (0%)	0 (0%)		
Liver						
Hepatocellular adenoma	0 (0%)	1 (2%)	0 (0%)	3 (6%)	⬆	⇧
Pituitary						
Adenoma	19 (38%)	15 (30%)	16 (32%)	15 (30%)		
Thyroid						
C-cell adenoma	6 (12%)	4 (8%)	5 (10%)	8 (16%)		
Follicular adenoma	1 (2%)	2 (4%)	0 (0%)	0 (0%)		
Uterus						
Endometrial stromal polyp	7 (14%)	8 (16%)	11 (22%)	7 (14%)		
Endometrial stromal sarcoma	4 (8%)	1 (2%)	0 (0%)	0 (0%)		⇩
Mammary gland						
Fibroadenoma	3 (6%)	3 (6%)	6 (12%)	7 (14%)		

[a] : No. of animals with bearing tumor (incidence ; %)

⬆ : The trend of treated groups statistically different from control group at $p \leqq 0.05$ by Peto test

⇧ ⇩ : The trend of treated groups statistically different from control group at $p \leqq 0.05$ by Cochran-Armitage test

TABLE 19 NON-NEOPLASTIC LESIONS OF MALE AND FEMALE RATS IN THE 2-YEAR DRINKING WATER STUDY OF 2-HYDROXYETHYL ACRYLATE (SELECTED)

		Male				Female			
Group		Control	320 ppm	800 ppm	2000 ppm	Control	320 ppm	800 ppm	2000 ppm
No. of animals examined		<50>	<50>	<49>	<50>	<50>	<50>	<50>	<50>
Liver	Grade								
Basophilic cell focus	+	9	8	15	16	3	3	4	6
	2+	0	0	7	7	1	1	0	0
	3+	0	0	0	0	0	0	1	0
Kidney									
Chronic nephropathy	+	10	3	4	3	15	18	16	31
	2+	25	13	15	7	2	6	13	6
	3+	13	28	26	36	2	7	6	0
	4+	0	2	3	2	0	0	0	0
Papillary necrosis	+	1	12	14	20	0	7	23	7
	2+	0	0	1	4	0	0	0	19
	3+	0	0	0	0	0	0	0	2
Mineralization : papilla	+	3	2	11	19	3	3	6	22
	2+	0	0	0	0	0	0	1	1
Urothelial hyperplasia : pelvis	+	16	18	25	25	9	9	9	27
	2+	0	0	0	1	0	0	0	0
Stomach (Forestomach)									
Squamous cell hyperplasia	+	3	0	0	5	1	3	3	4
Basal cell hyperplasia	+	0	0	0	0	0	0	0	3

Grade + : Slight 2+ : Moderate 3+ : Marked 4+ : Severe

TABLE 20 CAUSE OF DEATH OF MALE AND FEMALE RATS IN THE 2-YEAR DRINKING WATER STUDY OF 2-HYDROXYETHYL ACRYLATE

Group	Male Control	Male 320 ppm	Male 800 ppm	Male 2000 ppm	Female Control	Female 320 ppm	Female 800 ppm	Female 2000 ppm
No. of dead/moribund animals	<10>	<6>	<12>	<15>	<13>	<10>	<8>	<8>
Chronic nephropathy	0	0	0	3	0	0	0	0
Urinary retention	0	0	1	0	0	0	0	0
Thrombosis	0	0	0	1	0	0	0	0
Deglutition disorder	0	0	0	0	0	0	2	0
Tumor death :								
leukemia	2	2	5	3	1	3	2	4
skin/appendage	1	0	0	1	0	0	0	0
subcutis	2	0	0	0	1	0	0	0
tongue	0	0	0	1	0	0	0	0
salivary gland	0	0	2	0	0	0	0	0
pancreas	0	0	0	0	0	0	1	0
pituitary	1	2	1	4	4	5	1	2
adrenal	1	0	1	0	0	0	0	0
uterus	-	-	-	-	5	0	0	0
mammary gland	0	0	0	0	0	0	0	1
clitoral gland	-	-	-	-	1	0	0	0
brain	0	0	0	0	0	0	1	0
spinal cord	0	0	0	0	0	1	0	0
Zymbal gland	0	0	0	1	0	0	0	0
bone	1	0	1	0	0	0	1	0
vertebrae	0	0	1	0	0	0	0	0
peritoneum	1	0	0	0	0	0	0	0
No microscopical confirmation	1	2	0	1	1	1	0	1

TABLE 21 HISTORICAL CONTROL DATA OF SELECTED NEOPLASTIC LESIONS IN JAPAN BIOASSAY RESEARCH CENTER : F344/DuCrj MALE RATS

Organs / Tumors	No. of animals examined	No. of animals with bearing tumor	Incidence (%)	Min. - Max. (%)
Skin	<1248>			
Keratoacanthoma		39	3.1	0 - 8
Squamous cell papilloma		14	1.1	0 - 4
Subcutis	<1249>			
Fibroma		90	7.2	2 - 14
Lung	<1249>			
Bronchiolar-alveolar adenoma		37	3.0	0 - 8
Spleen	<1249>			
Mononuclear cell leukemia		152	12.2	4 - 22
Stomach	<1248>			
Squamous cell papillpma		2	0.2	0 - 2
Squamous cell carcinoma		0	0	0
Liver	<1249>			
Hepatocellular adenoma		20	1.6	0 - 6
Pituitary	<1244>			
Adenoma		439	35.3	18 - 66
Thyroid	<1243>			
C-cell adenoma		155	12.5	4 - 26
Follicular adenoma		12	1.0	0 - 4
Follicular adenocarcinoma		27	2.2	0 - 8
Testis	<1249>			
Interstitial cell tumor		1099	88.0	74 - 98

25 carcinogenicity studies examined in Japan Bioassay Research Center were used.
Study No. : 0043, 0059, 0061, 0063, 0065, 0067, 0095, 0104, 0115, 0130, 0141, 0158, 0162, 0189, 0205, 0210, 0224, 0242, 0267, 0269
0284, 0288, 0294, 0296, 0318

TABLE 22 HISTORICAL CONTROL DATA OF SELECTED NEOPLASTIC LESIONS IN JAPAN BIOASSAY RESEARCH CENTER : F344/DuCrj FEMALE RATS

Organs / Tumors	No. of animals examined	No. of animals with bearing tumor	Incidence (%)	Min. - Max. (%)
Spleen	<1197>			
Mononuclear cell leukemia		160	13.4	2 - 26
Stomach	<1197>			
Squamous cell papilloma		2	0.2	0 - 2
Liver	<1197>			
Hepatocellular adenoma		16	1.3	0 - 6
Pituitary	<1195>			
Adenoma		493	41.3	16 - 71
Thyroid	<1191>			
C-cell adenoma		115	9.7	0 - 16
Follicular adenoma		12	1.0	0 - 4
Uterus	<1197>			
Endometrial stromal polyp		172	14.4	2 - 28
Endometrial stromal sarcoma		7	0.6	0 - 2
Mammary gland	<1197>			
Fibroadenoma		130	10.9	0 - 20

24 carcinogenicity studies examined in Japan Bioassay Research Center were used.
Study No. : 0043, 0059, 0061, 0063, 0065, 0067, 0095, 0104, 0115, 0130, 0141, 0158, 0162, 0189, 0205, 0210, 0224, 0242, 0267, 0269 0284, 0296, 0303, 0318