

Ethylenediaminetetraacetic acid

(エチレンジアミン四酢酸)

Experimental Data-1

(B9604-1/3)

Chemical Name	: <u>Ethylenediaminetetraacetic acid</u>
Synonym	: <u>Ethylenedinitrilotetraacetic acid</u> <u>Edetic acid</u> <u>EDTA</u>
Molecular Weight	: 292.25
Melting Point	: 220°C(decomposition)[Merck]
Boiling Point	: -
Flashing Point	: -
Molecular Formula	: C <sub>10</sub> H <sub>16</sub> N <sub>2</sub> O <sub>8</sub>
Chemical Structure	 (HOOCCH <sub>2</sub> ) <sub>2</sub> NCH <sub>2</sub> CH <sub>2</sub> N(CH <sub>2</sub> COOH) <sub>2</sub>
CAS No.	: 60-00-4
MITI No.	: (2)-1263
ML No.	: -
Specified Chemical Substances	: -
Source of Substance	: Tokyo Kasei Kogyo Co., Ltd.
Lot No.	: GB01
Purity	: 98%
Vehicle	: DMSO

Conc. μ g/plate	Number of Revertants/plate									
	Base-substitution						Frame-shift			
	TA100		TA1535		WP2 <sub>uvrA</sub>		TA98		TA1537	
	S9-	S9+	S9-	S9+	S9-	S9+	S9-	S9+	S9-	S9+
DMSO	( 146 )	( 157 )	( 8 )	( 10 )	( 21 )	( 23 )	( 12 )	( 26 )	( 5 )	( 7 )
	143	160	8	9	13	18	11	29	8	9
	152	163	5	8	23	25	17	20	3	8
1 .22	( 148 )	( 162 )	( 7 )	( 9 )	( 18 )	( 22 )	( 14 )	( 25 )	( 6 )	( 9 )
	137	158	8	8	25	24	17	28	3	7
	129	144	11	9	22	20	20	36	5	5
4 .88	( 133 )	( 151 )	( 10 )	( 9 )	( 24 )	( 22 )	( 19 )	( 32 )	( 4 )	( 6 )
	143	194	5	7	20	17	16	26	5	5
	128	201	7	5	17	8	18	25	3	5
19 .5	( 136 )	( 198 )	( 6 )	( 6 )	( 19 )	( 13 )	( 17 )	( 26 )	( 4 )	( 5 )
	174	163	3	6	14	15	10	24	5	1
	116	160	6	9	17	14	18	20	2	3
78 .1	( 145 )	( 162 )	( 5 )	( 8 )	( 16 )	( 15 )	( 14 )	( 22 )	( 4 )	( 2 )
	138	151	6	2	9	6	21	25	2	1
	148	150	6	6	10	9	10	28	1	0
313	( 143 )	( 151 )	( 6 )	( 4 )	( 10 )	( 8 )	( 16 )	( 27 )	( 2 )	( 1 )
	113	158	1	0	6	3	5	1	0	0
	33	159	5	1	8	10	0	1	2	0
1250 †	( 73 )	( 159 )	( 3 )	( 1 )	( 7 )	( 7 )	( 3 )	( 1 )	( 1 )	( 0 )
	0 *	0 *	1 *	2 *	1 *	0 *	0 *	0 *	0 *	0 *
	0 *	0 *	1 *	0 *	0 *	0 *	1 *	0 *	0 *	0 *
5000 †	( 0 *)	( 0 *)	( 1 *)	( 1 *)	( 1 *)	( 0 *)	( 1 *)	( 0 *)	( 0 *)	( 0 *)
Judgement	-	-	-	-	-	-	-	-	-	-
Specific Mutagenicity										
Positive Control	AF-2 ( 685 )	2-AA ( 1278 )	NaN <sub>3</sub> ( 283 )	2-AA ( 220 )	AF-2 ( 201 )	2-AA ( 1050 )	AF-2 ( 420 )	2-AA ( 441 )	9-AA ( 776 )	2-AA ( 158 )

Mutagenicity in Bacterial Test ; Negative

IARC Evaluation ; not yet cited

\* Growth inhibition was observed.

† Test chemical was precipitated with S9mix.

Conc. μ g/plate	Number of Revertants/plate									
	Base-substitution						Frame-shift			
	TA100		TA1535		WP2 <i>uvrA</i>		TA98		TA1537	
DMSO	S9-	S9+	S9-	S9+	S9-	S9+	S9-	S9+	S9-	S9+
	( 159 )	( 165 )	( 8 )	( 9 )	( 19 )	( 21 )	( 17 )	( 20 )	( 7 )	( 9 )
9 .77				3 14 ( 9 )	17 10 ( 14 )	10 20 ( 15 )			5 5 ( 5 )	8 10 ( 9 )
19 .5				5 10 ( 8 )	15 18 ( 17 )	17 17 ( 17 )			6 9 ( 8 )	9 10 ( 10 )
39 .1	155 183 ( 169 )		5 6 ( 6 )	8 10 ( 9 )	16 18 ( 17 )	13 25 ( 19 )	9 15 ( 12 )	26 20 ( 23 )	2 7 ( 5 )	8 11 ( 10 )
78 .1	171 149 ( 160 )		7 3 ( 5 )	2 10 ( 6 )	20 11 ( 16 )	26 18 ( 22 )	14 16 ( 15 )	20 25 ( 23 )	5 1 ( 3 )	6 6 ( 6 )
156	174 157 ( 166 )	174 155 ( 165 )	7 10 ( 9 )	3 1 ( 2 )	11 17 ( 14 )	13 11 ( 12 )	14 17 ( 16 )	20 18 ( 19 )	6 5 ( 6 )	6 7 ( 7 )
313	187 178 ( 183 )	185 197 ( 191 )	6 5 ( 6 )	9 0 ( 5 )	21 11 ( 16 )	16 10 ( 13 )	16 21 ( 19 )	16 22 ( 19 )	6 7 ( 7 )	9 5 ( 7 )
625	160 164 ( 162 )	185 171 ( 178 )	7 5 ( 6 )	5 6 ( 6 )	10 10 ( 10 )	9 9 ( 9 )	16 18 ( 17 )	15 24 ( 20 )	2 5 ( 4 )	3 7 ( 5 )
1250 †	155 156 ( 156 )	176 172 ( 174 )	8 7 ( 8 )	1 5 ( 3 )	2 9 ( 6 )	7 11 ( 9 )	2 1 ( 2 )	1 1 ( 1 )	8 5 ( 7 )	5 5 ( 5 )
2500 †	11 25 ( 18 )	52 109 ( 81 )	3 2 ( 3 )	5 1 ( 3 )	0 * 0 * ( 0 * )	2 * 0 * ( 1 * )	0 2 ( 1 )	1 0 ( 1 )	0 6 ( 3 )	0 0 ( 0 )
5000 †	0 * 0 * ( 0 * )	6 * 37 * ( 22 * )	0 * 1 * ( 1 * )	0 * 1 * ( 1 * )	0 * 1 * ( 1 * )	1 * 1 * ( 1 * )	0 * 0 * ( 0 * )	0 * 0 * ( 0 * )	0 * 1 * ( 1 * )	0 * 0 * ( 0 * )
Judgement	—	—	—	—	—	—	—	—	—	—
Specific Mutagenicity										
Positive Control	AF-2 ( 641 )	2-AA ( 1171 )	NaN <sub>3</sub> ( 328 )	2-AA ( 256 )	AF-2 ( 205 )	2-AA ( 983 )	AF-2 ( 537 )	2-AA ( 419 )	9-AA ( 668 )	2-AA ( 192 )

Experimental Data-3

Conc. μ g/plate	Number of Revertants/plate					
	Base-substitution					
	TA102		TA104		WP2uvrA/pKM101	
DMSO	S9-	S9+	S9-	S9+	S9-	S9+
	( 255 )	( 355 )	( 264 )	( 307 )	( 54 )	( 76 )
1 .22	293	322	274	337	68	71
	275	326	273	325	36	97
4 .88	( 284 )	( 324 )	( 274 )	( 331 )	( 52 )	( 84 )
	274	350	255	391	54	67
19 .5	284	378	269	346	66	86
	( 279 )	( 364 )	( 262 )	( 369 )	( 60 )	( 77 )
78 .1	261	405	258	366	55	52
	292	435	252	346	61	75
313	( 277 )	( 420 )	( 255 )	( 356 )	( 58 )	( 64 )
	312	365	287	368	54	22
1250 †	287	385	293	365	55	59
	( 300 )	( 375 )	( 290 )	( 367 )	( 55 )	( 41 )
5000 †	75	340	290	383	10	21
	202	361	292	364	0	26
Judgement	( 139 )	( 351 )	( 291 )	( 374 )	( 5 )	( 24 )
	0 *	2 *	0 *	24 *	2 *	33 *
Specific Mutagenicity	0 *	2 *	0 *	307 *	22 *	9 *
	( 0 *)	( 2 *)	( 0 *)	( 166 *)	( 12 *)	( 21 *)
Positive Control	0 *	0 *	0 *	24 *	0 *	0 *
	( 0 *)	( 0 *)	( 0 *)	( 9 *)	( 0 *)	( 0 *)
	BLM	2-AA	PA	2-AA	AF-2	2-AA
	( 775 )	( 1388 )	( 1987 )	( 1437 )	( 1270 )	( 1027 )

Experimental Data-4

(B9604-3/3)

Conc. μ g/plate	Number of Revertants/plate					
	Base-substitution					
	TA102		TA104		WP2uvrA/pKM101	
DMSO	S9-	S9+	S9-	S9+	S9-	S9+
	( 274 )	( 379 )	( 273 )	( 382 )	( 48 )	( 71 )
2 .44						70
						64
4 .88						( 67 )
						62
9 .77						82
						( 72 )
19 .5	317				47	71
	317				41	67
39 .1	( 317 )				( 44 )	( 69 )
	313				39	68
78 .1	309				48	77
	( 311 )				( 44 )	( 73 )
156	299	394	278	365	48	69
	352	421	309	408	59	64
313	( 326 )	( 408 )	( 294 )	( 387 )	( 54 )	( 67 )
	279	418	279	411	34	77
625	338	384	325	400	45	57
	( 309 )	( 401 )	( 302 )	( 406 )	( 40 )	( 67 )
1250 †	303	380	307	405	26	47
	245	410	311	411	36	56
Judgement	( 274 )	( 395 )	( 309 )	( 408 )	( 31 )	( 52 )
	112	419	293	412	13	11
Specific Mutagenicity	141	388	314	379	10	13
	( 127 )	( 404 )	( 304 )	( 396 )	( 12 )	( 12 )
Positive Control	262	14	205	388	23	16
	247	206	273	408	2	2
	( 255 )	( 110 )	( 239 )	( 398 )	( 13 )	( 9 )
Judgement	33 *	265 *	258 *	375 *	1 *	5 *
	20 *	197 *	211 *	419 *	1 *	2 *
Specific Mutagenicity	( 27 *)	( 231 *)	( 235 *)	( 397 *)	( 1 *)	( 4 *)
Positive Control	BLM	2-AA	PA	2-AA	AF-2	2-AA
	( 755 )	( 1219 )	( 1984 )	( 1483 )	( 1719 )	( 1117 )