1,3,5,7-Tetraazatricyclo[3.3.1.1^{3,7}]decane

(1,3,5,7-ﾃﾄﾗｱｻﾞﾄﾘｼｸﾛ[3.3.1.1^{3,7}]ﾃﾞｶﾝ)

Chemical Name ; 1,3,5,7-Tetraazatricyclo-[3.3.1.1^{3,7}]decane

Synoym ; Hexamethylenetetramine
Urotropine
Methenamine

Molecular Weight ; 140.19

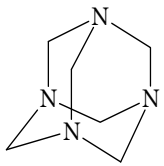
Melting Point ; 263℃(sublimation)[CHCD]

Boiling Point ; －

Flashing Point ; 250℃ [Aldrich]

Molecular Formula ; $C_6H_{12}N_4$

Chemical Structure ;



CAS No. ; 100-97-0

METI No. ; (5)-1155

MHLW No. ; －

Specified Chemical Substances ; －

Source of Substance; Tokyo Kasei Kogyo Co., Ltd.

Lot No. ; GG01

Purity ; 100.1%

Vehicle ; Ultrapure H_2O

Judgement for
Chromosomal Aberration in CHL/IU ; Positive

IARC Evaluation ; not yet cited

Experimental Data (Short treatments)

Treatment Time (h)	S9 mix	Concentration (mg/ml)	Cell with Structural Chromosome Aberration (%)							Gap (%)	Cell Growth Rate (%)	Cell with Numerical Chromosome Aberration(%)			
			No. of Metaphase	Chromatid		Chromosome		Others	Total			No. of Metaphase	Poly-ploid	Others	Total
				ctb	cte	csb	cse								
6-18	－	[H_2O] (10%)	200	0.5	0	0	0	0	0.5	0	100	200	0	0	0
		0.60	200	0	0	0	0	0	0	0	103	200	0	0	0
		0.80	200	0.5	0.5	0	0.5	0	1.5	0	101	200	1	0	1
		1.0	200	0	1	0	0	0	1	0	98	200	6.5	0	6.5
		1.2	200	0.5	2	0	0	0	2	0	96	200	3.5	0	3.5
		1.4	200	2.5	2	0	0	0	4	0	97	200	9	0	9
		[MMC] (0.00012)	200	18	49.5	0	0	0	55.5	2.5	－	200	0.5	0	0.5
6-18	＋	[H_2O] (10%)	200	0.5	0	0	0	0	0.5	0	100	200	0.5	0	0.5
		0.60	200	0.5	0	0	0	0	0.5	0	90	200	0.5	0	0.5
		0.80	200	0	0	0	0	0	0	0	88	200	0	0	0
		1.0	200	0	0	0	0	0	0	0	80	200	0.5	0	0.5
		1.2	200	0	0	0	0	0	0	0	80	200	1.5	0	1.5
		1.4	200	0	1	0	0	0	1	0	78	200	0	0	0
		[B[a]P] (0.01)	200	2.5	27.5	0	0	0	28	0.5	－	200	0	0	0

※ Test conditions: S9mix ; 5%, Treatment time ; 6h, Recovery time ; 18h

Experimental Data without Metabolic Activation (Continuous treatments)

Treatment Time (h)	Concentration (mg/ml)	Cell with Structural Chromosome Aberration (%)							Gap (%)	Cell Growth Rate (%)	Cell with Numerical Chromosome Aberration(%)			
		No. of Metaphase	Chromatid		Chromosome		Others	Total			No. of Metaphase	Polyploid	Others	Total
			ctb	cte	csb	cse								
24-0	[H_2O] (10%)	200	0	0	0	0	0	0	0	100	200	1	0	1
	0.20	200	1.5	0	0	0	0	1.5	0.5	102	200	0	0	0
	0.30	200	0.5	1	0	0	0	1.5	0	87	200	0.5	0	0.5
	0.40	200	2	3.5	0	0	0	5	0	78	200	0	0	0
	0.50	200	2	3.5	0	0	0	5	0	77	200	1	0	1
	0.60	151	0.7	2	0	0	0	2.7	0	62	151	0.7	0	0.7
	0.70	111	1.8	0.9	0	0	0	2.7	0	61	111	0.9	0	0.9
	[MMC] (0.00004)	200	12	35.5	1	1	1	45	1.5	−	200	1	0	1
48-0	[H_2O] (10%)	200	0	0	0	0	0	0	0	100	200	0	0	0
	0.20	200	0	0	0	0	0	0	0.5	93	200	1	0	1
	0.30	200	0.5	1	0	0	0	1.5	0	85	200	2	0	2
	0.40	200	1.5	3.5	0	0	0	5	0	61	200	6	0	6
	0.50	200	6.5	24	0	0.5	0	25	0.5	36	200	19	0	19
	0.60	124	0	5.7	0	0	0	5.7	0.8	23	124	10.5	0	10.5
	[MMC] (0.00004)	200	15	51	0	0	0	57	1.5	−	200	0	0	0

※ Test conditions: Treatment time ; 24h or 48h, Rcovery time ; 0h