

4-クロロ-2-ニトロアニリンのマウスを用いた
経口投与によるがん原性試験（混餌試験）報告書

試験番号：0760

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4-CHLORO-2-NITROANILINE

APPENDIX 1-1

IDENTITY OF 4-CHLORO-2-NITROANILINE

IN THE 2-YEAR FEED STUDY

IDENTITY OF 4-CHLORO-2-NITROANILINE IN THE 2-YEAR FEED STUDY

Test Substance : 4-Chloro-2-nitroaniline (Tokyo Chemical Industry Co., Ltd.)

Lot No. : LUTFB

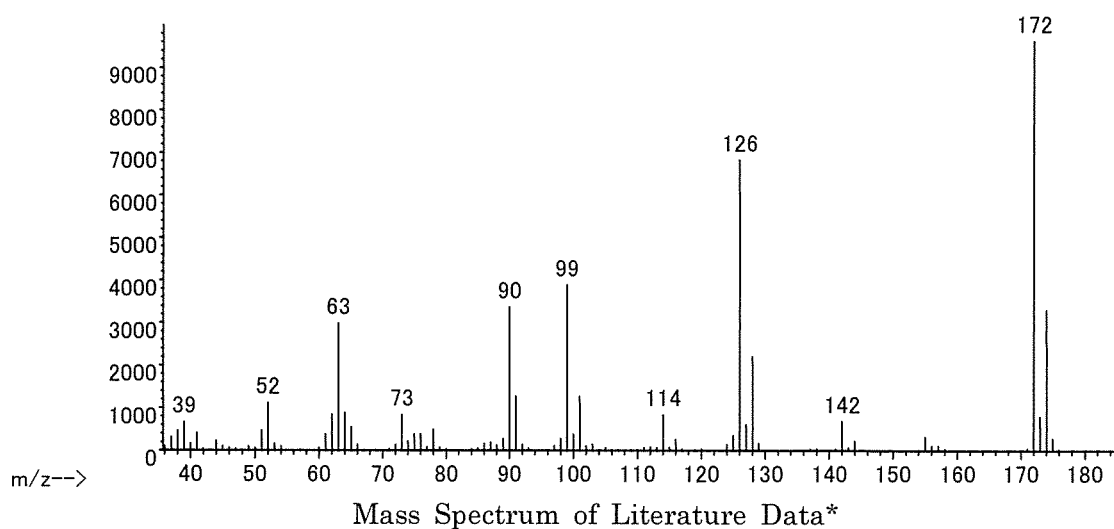
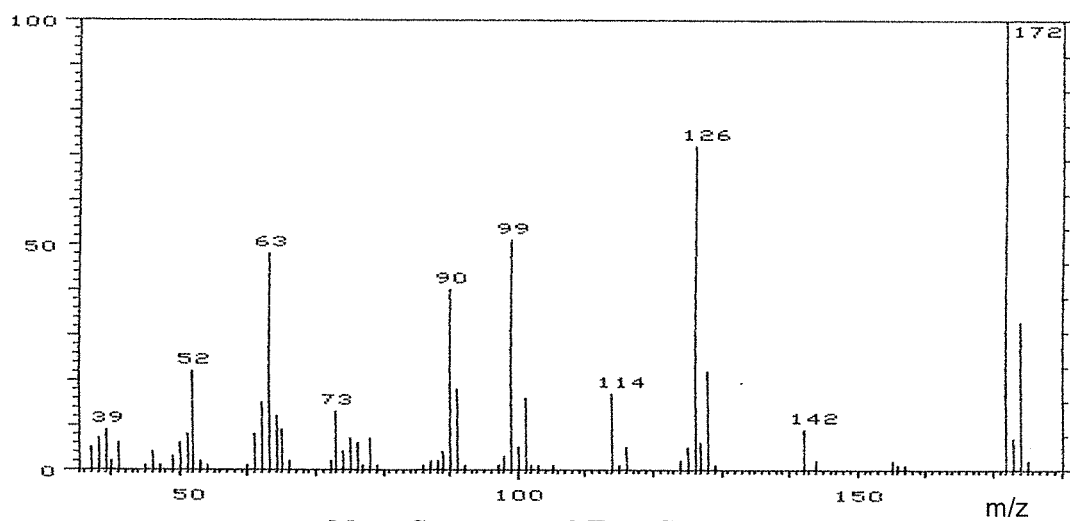
1. Spectral Data

Mass Spectrometry

Instrument : Hitachi M-80B Mass Spectrometer

Ionization : EI (Electron Ionization)

Ionization Voltage : 70eV



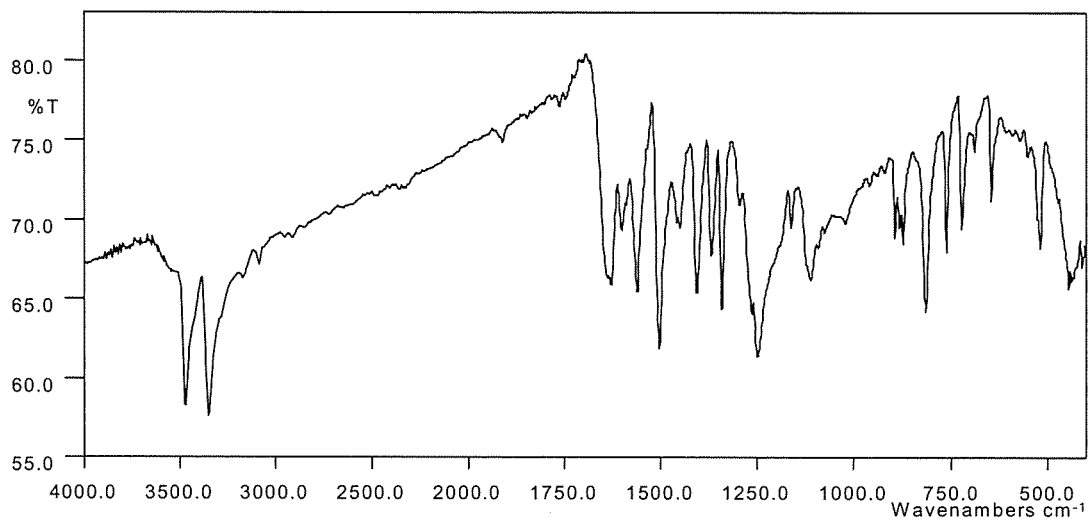
Result: The mass spectrum was consistent with literature spectrum.

(*McLafferty FW, ed. 1994. Wiley Registry of Mass Spectral Data. 6th ed. New York, NY : John Wiley and Sons.)

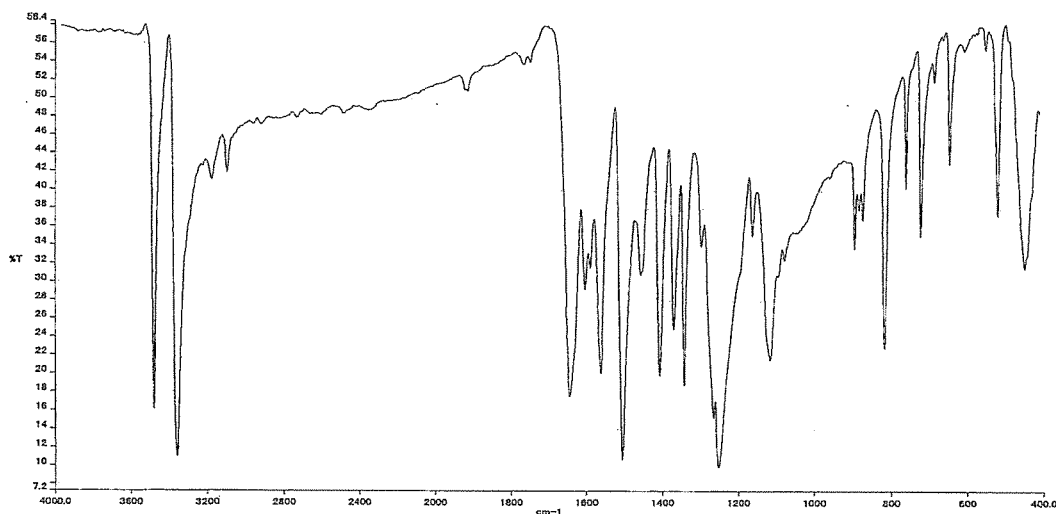
Infrared Spectrometry

Instrument : Shimadzu FTIR-8200PC Infrared Spectrometer

Cell : KBr

Resolution : 4 cm^{-1} 

Infrared Spectrum of Test Substance



Infrared Spectrum of Literature Data*

Result: The infrared spectrum was consistent with literature spectrum.

(*Performed by Tokyo Chemical Industry Co., Ltd.)

2. Conclusion: The test substance was identified as 4-chloro-2-nitroaniline by mass spectrum and infrared spectrum.

APPENDIX 1-2

STABILITY OF 4-CHLORO-2-NITROANILINE
IN THE 2-YEAR FEED STUDY

STABILITY OF 4-CHLORO-2-NITROANILINE IN THE 2-YEAR FEED STUDY

Test Substance : 4-Chloro-2-nitroaniline (Tokyo Chemical Industry Co., Ltd.)

Lot No. : LUTFB

1. High Performance Liquid Chromatography

Instrument : Shimadzu LC-10 High Performance Liquid Chromatograph

Column : TSK-GEL ODS-80TM (4.6 mm ϕ \times 15 cm)

Column Temperature: 40 °C

Flow Rate : 1 mL/min

Mobile Phase : Acetonitrile : 5mmol SDS solution (Phosphoric acid pH2.2) = 70 : 30

Detector : UV (405 nm)

Injection Volume : 10 μ L

Date analyzed	Peak No.	Retention Time (min)	Area (%)
2010.07.12	1	3.035	100
2012.08.20	1	3.087	100

Result: High performance liquid chromatography indicated one major peak (peak No.1) analyzed on 2010.7.12 and one major peak (peak No.1) analyzed on 2012.8.20. No new trace impurity peak in the test substance analyzed on 2012.8.20 was detected.

2. Conclusion: The test substance was stable for the period that the test substance had been used for the study.

APPENDIX 2-1

CONCENTRATION OF 4-CHLORO-2-NITROANILINE
IN FORMULATED DIETS IN THE 2-YEAR FEED STUDY

CONCENTRATION OF 4-CHLORO-2-NITROANILINE IN FORMULATED DIETS IN THE
2-YEAR FEED STUDY

Analytical Method : The samples were analyzed by high performance liquid chromatography.

Instrument : Shimadzu LC-10 High Performance Liquid Chromatograph

Column : TSK-GEL ODS-80TM (4.6 mm ϕ \times 15 cm)

Column Temperature: 40 °C

Flow Rate : 1 mL/min

Mobile Phase : Acetonitrile : 5mmol SDS solution (Phosphoric acid pH2.2) = 70 : 30

Detector : UV (405 nm)

Injection Volume : 10 μ L

Date Analyzed	Target Concentration					
	200 ^a	Male		Female		
		1000	5000	400	2000	10000
2010.08.04	188 ^b (94.0) ^c	971 (97.1)	4910 (98.2)	376 (94.0)	1990 (99.5)	9760 (97.6)
2010.10.27	206 (103)	1080 (108)	5380 (108)	419 (105)	2120 (106)	10900 (109)
2011.01.19	213 (107)	1070 (107)	5340 (107)	429 (107)	2110 (106)	10500 (105)
2011.04.13	199 (99.5)	956 (95.6)	4870 (97.4)	414 (104)	1950 (97.5)	10500 (105)
2011.07.06	210 (105)	1060 (106)	5410 (108)	423 (106)	2090 (105)	10500 (105)
2011.09.28	211 (106)	1040 (104)	5330 (107)	410 (103)	2100 (105)	10600 (106)
2011.12.21	204 (102)	1130 (113)	5240 (105)	418 (105)	2060 (103)	10300 (103)
2012.03.14	195 (97.5)	993 (99.3)	5000 (100)	379 (94.8)	2060 (103)	10300 (103)
2012.06.06	206 (103)	1010 (101)	5050 (101)	418 (105)	2020 (101)	10200 (102)

^a ppm

^b ppm (Mean measured concentration.)

^c % (Mean measured concentration/target concentration \times 100.)

APPENDIX 2-2

HOMOGENEITY OF 4-CHLORO-2-NITROANILINE
IN FORMULATED DIETS IN THE 2-YEAR FEED STUDY

HOMOGENEITY OF 4-CHLORO-2-NITROANILINE IN FORMULATED DIETS IN THE 2-YEAR FEED STUDY

Analytical Method : The samples were analyzed by high performance liquid chromatography.

Instrument : Shimadzu LC-10 High Performance Liquid Chromatograph

Column : TSK-GEL ODS-80TM (4.6 mm ϕ \times 15 cm)

Column Temperature: 40 °C

Flow Rate : 1 mL/min

Mobile Phase : Acetonitrile : 5mmol SDS solution (Phosphoric acid pH2.2) = 70 : 30

Detector : UV (405 nm)

Injection Volume : 10 μ L

	Target Concentration					
	Male			Female		
	200 ^a	1000	5000	400	2000	10000
Coefficient Variation	4.63 ^b	3.14	3.38	5.13	1.09	2.63

^a ppm

^b % (n=7)

APPENDIX 2-3

STABILITY OF 4-CHLORO-2-NITROANILINE
IN FORMULATED DIETS

STABILITY OF 4-CHLORO-2-NITROANILINE IN FORMULATED DIETS

Analytical Method : The samples were analyzed by high performance liquid chromatography.

Instrument : Shimadzu LC-10 High Performance Liquid Chromatograph

Column : TSK-GEL ODS-80TM (4.6 mm ϕ \times 15 cm)

Column Temperature: 40 °C

Flow Rate : 1 mL/min

Mobile Phase : Acetonitrile : 5mmol SDS solution (Phosphoric acid pH2.2) = 70 : 30

Detector : UV (405 nm)

Injection Volume : 10 μ L

Date Analyzed	Target Concentration		
	100 ^a	1250	20000
2009.09.09	101 (100) ^b	1390 (100)	20400 (100)
2009.09.17 ^c	94.2 (93.3)	1320 (95.0)	19900 (97.5)
2009.09.17 ^d	95.3 (94.4)	1330 (95.7)	20300 (99.5)

^a ppm

^b % (Percentage was based on the concentration at the date of preparation.)

^c Animal room samples

^d Cold storage samples

APPENDIX 3

METHODS, UNITS AND DECIMAL PLACE FOR HEMATOLOGY
AND BIOCHEMISTRY IN THE 2-YEAR FEED STUDY OF
4-CHLORO-2-NITROANILINE

METHODS, UNITS AND DECIMAL PLACE FOR HEMATOLOGY AND BIOCHEMISTRY
IN THE 2-YEAR FEED STUDY STUDY OF 4-CHLORO-2-NITROANILINE

Item	Method	Unit	Decimal place
Hematology			
Red blood cell (RBC)	Light scattering method ¹⁾	$\times 10^6/\mu\text{L}$	2
Hemoglobin(Hgb)	Cyanmethemoglobin method ¹⁾	g/dL	1
Hematocrit(Hct)	Calculated as $\text{RBC} \times \text{MCV}/10$ ¹⁾	%	1
Mean corpuscular volume(MCV)	Light scattering method ¹⁾	fL	1
Mean corpuscular hemoglobin(MCH)	Calculated as $\text{Hgb}/\text{RBC} \times 10$ ¹⁾	pg	1
Mean corpuscular hemoglobin concentration (MCHC)	Calculated as $\text{Hgb}/\text{Hct} \times 100$ ¹⁾	g/dL	1
Platelet	Light scattering method ¹⁾	$\times 10^3/\mu\text{L}$	0
Reticulocyte	Light scattering method ¹⁾	%	1
Methemoglobin	Van Assendelft method ²⁾	%	1
White blood cell(WBC)	Light scattering method ¹⁾	$\times 10^3/\mu\text{L}$	2
Differential WBC	Light scattering method ¹⁾	%	0
Biochemistry			
Total protein(TP)	Biuret method ³⁾	g/dL	1
Albumin (Alb)	BCG method ³⁾	g/dL	1
A/G ratio	Calculated as $\text{Alb}/(\text{TP} - \text{Alb})$ ³⁾	—	1
T-bilirubin	BOD method ³⁾	mg/dL	2
Glucose	GlcK·G-6-PDH method ³⁾	mg/dL	0
T-cholesterol	CE·COD·POD method ³⁾	mg/dL	0
Triglyceride	MGLP·GK·GPO·POD method ³⁾	mg/dL	0
Phospholipid	PLD·ChOD·POD method ³⁾	mg/dL	0
Aspartate aminotransferase (AST)	JSCC method ³⁾	U/L	0
Alanine aminotransferase (ALT)	JSCC method ³⁾	U/L	0
Lactate dehydrogenase (LDH)	JSCC method ³⁾	U/L	0
Alkaline phosphatase (ALP)	JSCC method ³⁾	U/L	0
γ -Glutamyl transpeptidase (γ -GTP)	JSCC method ³⁾	U/L	1
Creatine kinase (CK)	JSCC method ³⁾	U/L	0
Urea nitrogen	Urease·GLDH method ³⁾	mg/dL	1
Sodium	Ion selective electrode method ³⁾	mEq/L	0
Potassium	Ion selective electrode method ³⁾	mEq/L	1
Chloride	Ion selective electrode method ³⁾	mEq/L	0
Calcium	OCPC method ³⁾	mg/dL	1
Inorganic phosphorus	PNP·XOD·POD method ³⁾	mg/dL	1

1) Automatic blood cell analyzer (ADVIA120 : Siemens Healthcare Diagnostics Inc.)

2) Spectrophotometer (DU-530 : Beckman Coulter,Inc.)

3) Automatic analyzer (Hitachi 7080 : Hitachi,Ltd.)