メタクリル酸 2,3-エポキシプロピルのラットを
用いた吸入による 2 週間毒性試験報告書

試験番号：0757

APPENDICES

APPENDICES

APPENDIX 1 - 1

IDENTITY OF 2,3-EPOXYPROPYL METHACRYLATE

IN THE 2-WEEK INHALATION STUDY

IDENTITY AND IMPURITY OF 2,3-EPOXYPROPYL METHACRYLATE IN THE 2-WEEK INHALATION STUDY

Test Substance : 2,3-Epoxypropyl methacrylate (Wako Pure Chemical Industries, Ltd.)

Lot No. : CDJ4811

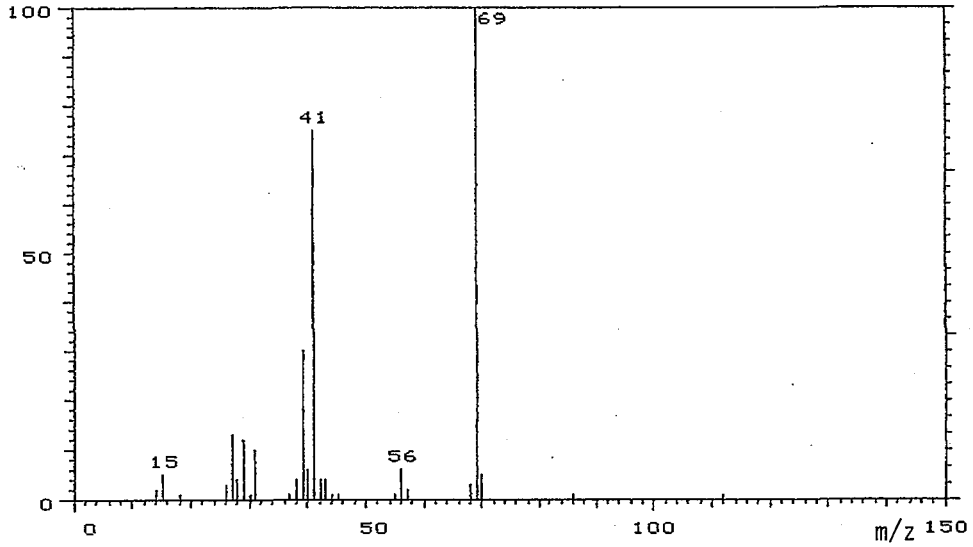
1. Spectral Data

Mass Spectrometry

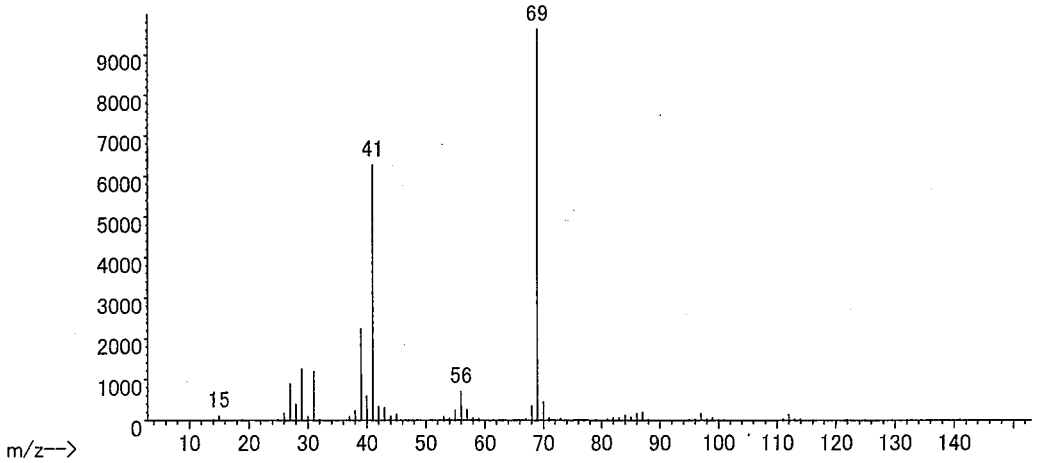
Instrument : Hitachi M-80B Mass Spectrometer

Ionization : EI (Electron Ionization)

Ionization Voltage : 70eV



Mass Spectrum of Test Substance



Mass Spectrum of Literature Data*

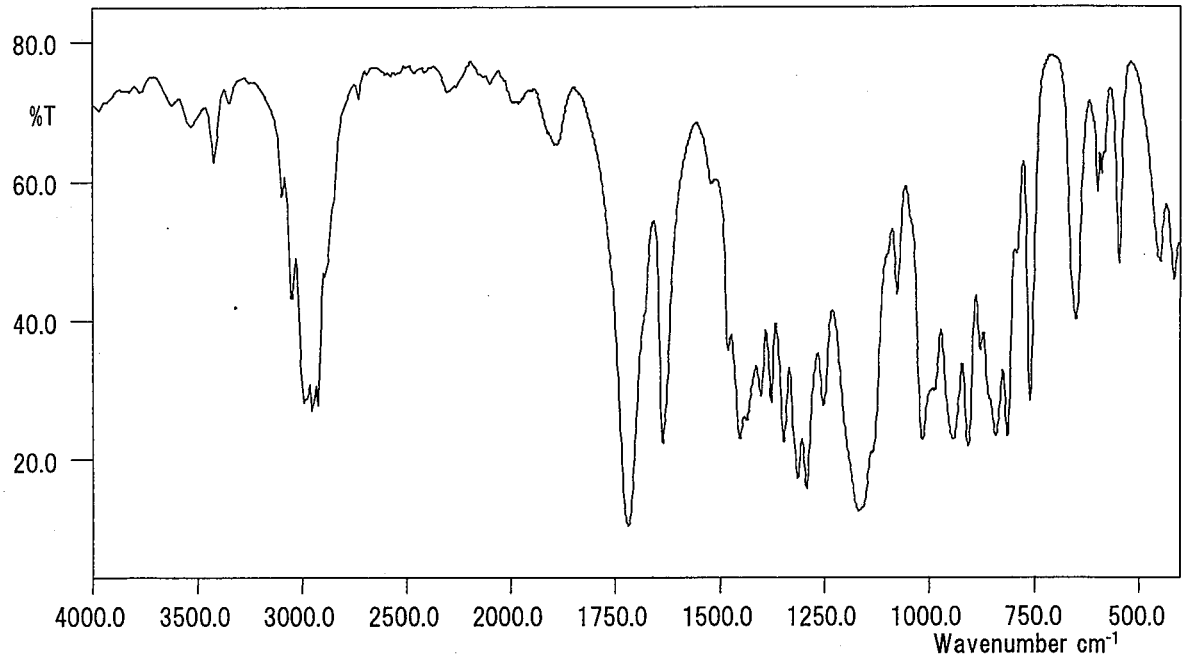
Result: The mass spectrum was consistent with literature spectrum.
(*McLafferty FW, ed. 1994. Wiley Registry of Mass Spectral Data. 6th ed. New York, NY:John Wiley and Sons.)

Infrared Spectrometry

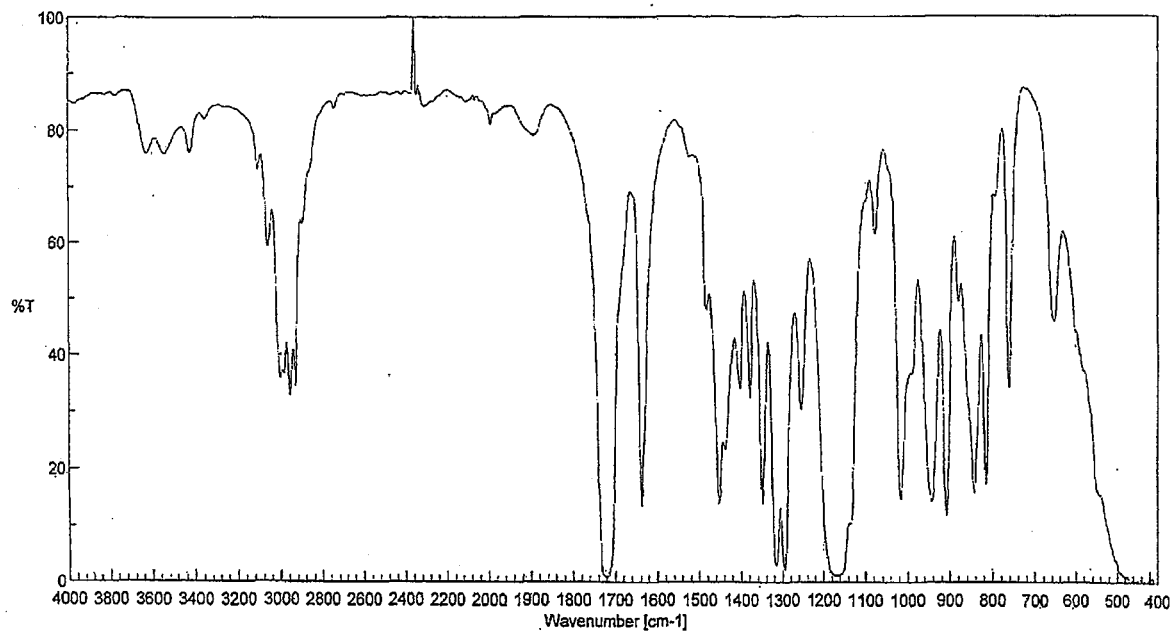
Instrument : Shimadzu FTIR-8200PC Infrared Spectrometer

Cell : KBr Liquid Cell

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 Wako Pure Chemical Industries, Ltd.)

2. Impurity

Instrument : Agilent Technologies 5890A Gas Chromatograph

Column : Methyl Silicone (0.53 mmϕ × 60 m)

Column Temperature : 180° C

Flow Rate : 10 mL/min

Detector : FID (Flame Ionization Detector)

Injection Volume : 1 μL

Sample Name	Peak No.	Area (%)	Peak Name
Test Substance	1	0.398	Glycidol
	2	99.275	2,3-Epoxypropyl methacrylate
	3	0.327	Not identified

Result: Gas chromatography indicated one major peak (peak No. 2) and two impurities. It was identified by comparing GC-MS with that of glycidol (peak No. 1) in the 2,3-epoxypropyl methacrylate. The amount in the test substance was 0.398% (The quantity value by the standard sample was 0.648%.) with a gas chromatograph. Another impurity peak (peak No. 3) cannot be identified by GC-MS.

3. Conclusion: The test substance was identified as 2,3-epoxypropyl methacrylate by mass spectrum and infrared spectrum. Gas chromatography indicated one major peak(2,3-epoxypropyl methacrylate) and two impurities. One of the impurity was glycidol in the test substance.

APPENDIX 1 - 2

STABILITY OF 2,3-EPOXYPROPYL METHACRYLATE IN THE 2-WEEK INHALATION STUDY

STABILITY OF 2,3-EPOXYPROPYL METHACRYLATE IN THE 2-WEEK INHALATION STUDY

Test Substance : 2,3-Epoxypropyl methacrylate (Wako Pure Chemical Industries, Ltd.)

Lot No. : CDJ4811

1. Gas Chromatography

Instrument : Agilent Technologies 5890A Gas Chromatograph

Column : Methyl Silicone (0.53 mmϕ × 60 m)

Column Temperature : 180° C

Flow Rate : 10 mL/min

Detector : FID (Flame Ionization Detector)

Injection Volume : 1 μL

Date (date analyzed)	Peak No.	Retention Time (min)	Area (%)
2010.02.26	1	2.239	0.398
	2	4.760	99.275
	3	7.050	0.327
2010.03.24	1	2.235	0.400
	2	4.747	99.274
	3	7.036	0.325

Result: Gas chromatography indicated one major peak (peak No. 2) and two impurities (peak No. 1 < 0.5% of total area, peak No. 3 < 0.5% of total area) analyzed on 2010.2.26 and one major peak (peak No. 2) and two impurities (peak No. 1 < 0.5% of total area, peak No. 3 < 0.5% of total area) analyzed on 2010.3.24. No new trace impurity peak in the test substance analyzed on 2010.3.24 was detected.

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

APPENDIX 2

ENVIRONMENTAL CONDITIONS OF INHALATION CHAMBER IN THE 2-WEEK INHALATION STUDY OF 2,3-EPOXYPROPYL METHACRYLATE

ENVIRONMENTAL CONDITIONS OF INHALATION CHAMBER IN THE 2-WEEK INHALATION STUDY OF 2,3-EPOXYPROPYL METHACRYLATE

Group Name	Temperature (℃) Mean ± S.D.	Humidity (%) Mean ± S.D.	Ventilation Rate (L/min) Mean ± S.D.*1	Ventilation Rate (L/min) Mean ± S.D.*2	Air Change (time/h) Mean*1	Air Change (time/h) Mean*2
Control	22.7 ± 0.1	57.6 ± 0.4	106.6 ± 0.3	213.4 ± 0.6	6.0	12.1
5 ppm	22.6 ± 0.1	55.1 ± 1.2	106.6 ± 0.4	212.9 ± 0.5	6.0	12.1
10 ppm	22.6 ± 0.1	55.4 ± 1.6	106.3 ± 0.2	213.2 ± 0.5	6.0	12.1
20 ppm	22.5 ± 0.1	52.2 ± 2.3	106.5 ± 0.3	213.2 ± 0.5	6.0	12.1
40 ppm	22.5 ± 0.1	52.5 ± 2.9	106.5 ± 0.3	213.1 ± 0.6	6.0	12.1
80 ppm	22.5 ± 0.1	53.0 ± 3.4	106.5 ± 0.3	213.0 ± 0.5	6.0	12.1

＊1: Exposure period　＊2: After exposure period

APPENDIX 3

METHODS, UNITS AND DECIMAL PLACE FOR HEMATOLOGY AND BIOCHEMISTRY IN THE 2-WEEK INHALATION STUDY OF 2,3-EPOXYPROPYL METHACRYLATE

METHODS, UNITS AND DECIMAL PLACE FOR HEMATOLOGY AND BIOCHEMISTRY IN THE 2-WEEK INHALATION STUDY OF 2,3-EPOXYPROPYL METHACRYLATE

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

1) Automatic blood cell analyzer (ADVIA120 : Siemens Healthcare Diagnostics Inc.)
2) Automatic analyzer (Hitachi 7080 : Hitachi,Ltd.)