

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

試験番号 : 0758

# APPENDICES

## APPENDICES

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2,3-EPOXYPROPYL METHACRYLATE

**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

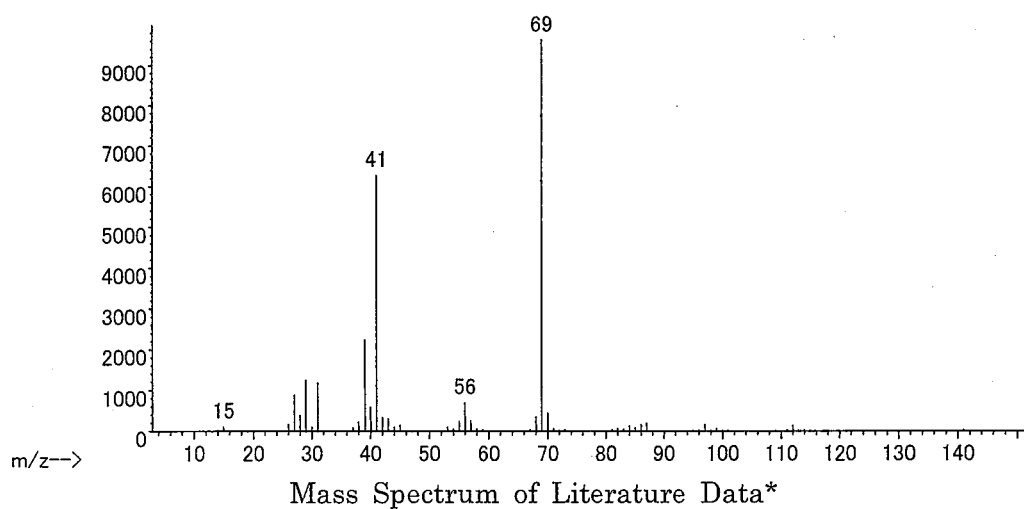
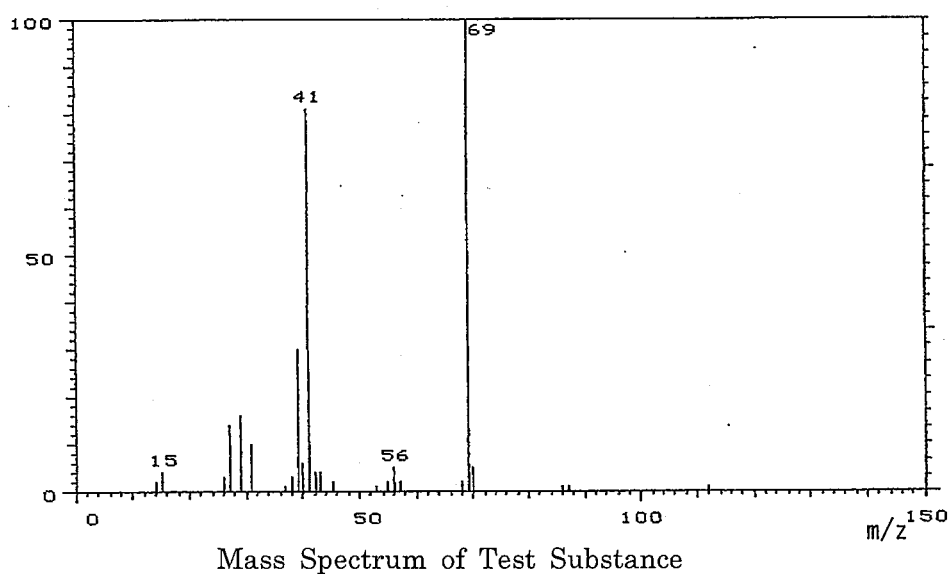
## 1. Spectral Data

Mass Spectrometry

Instrument : Hitachi M-80B Mass Spectrometer

Ionization : EI (Electron Ionization)

Ionization Voltage : 70eV



Result: The mass spectrum was consistent with literature spectrum.

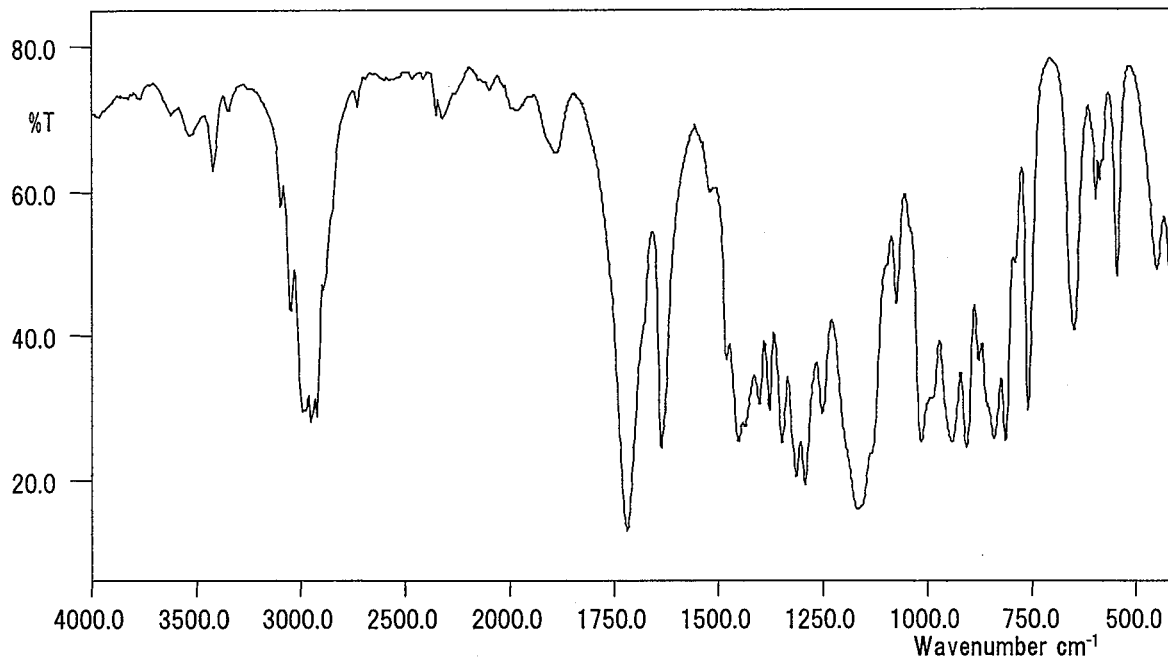
(\*McLafferty FW, ed. 1994. Wiley Registry of Mass Spectral Data. 6th ed. New York, NY:John Wiley and Sons.)

Infrared Spectrometry

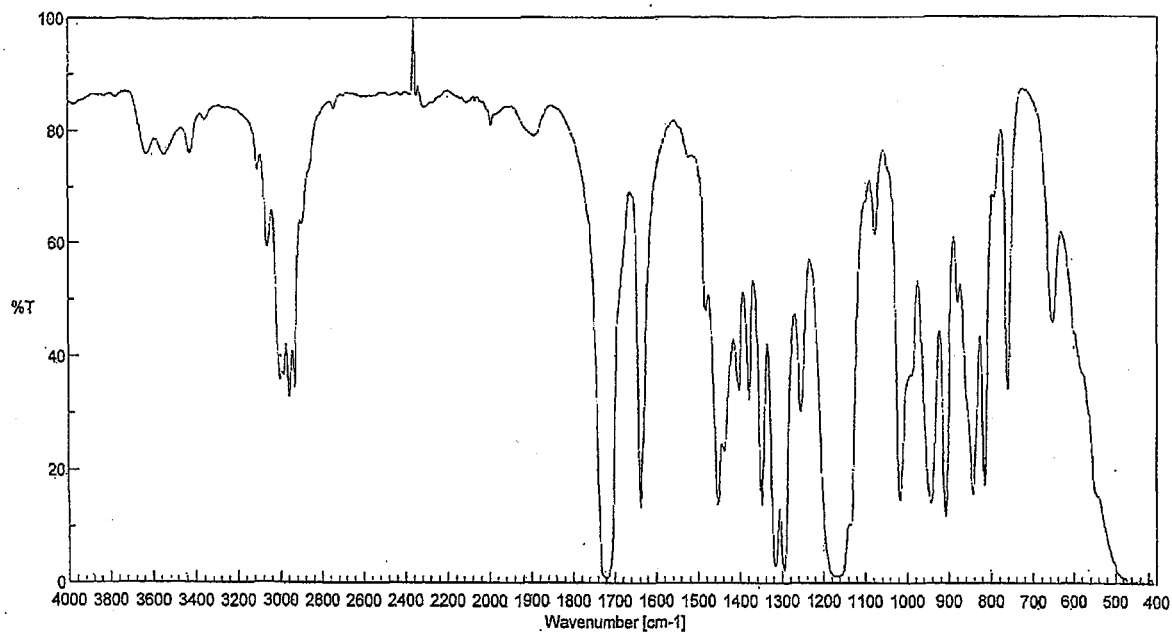
Instrument : Shimadzu FTIR-8200PC Infrared Spectrometer

Cell : KBr Liquid Cell

Resolution : 4 cm<sup>-1</sup>



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 mm  $\phi$   $\times$  60 m)  
Column Temperature : 180° C  
Flow Rate : 10 mL/min  
Detector : FID (Flame Ionization Detector)  
Injection Volume : 1  $\mu$ L

Sample Name	Peak No.	Area (%)	Peak Name
Test Substance	1	0.397	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 0.397% (The quantity value by the standard sample was 0.683%.) 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 mm  $\phi$   $\times$  60 m)

Column Temperature : 180°C

Flow Rate : 10 mL/min

Detector : FID (Flame Ionization Detector)

Injection Volume : 1  $\mu$ L

Date (date analyzed)	Peak No.	Retention Time (min)	Area (%)
2010.02.26	1	2.244	0.397
	2	4.774	99.275
	3	7.066	0.327
2010.03.24	1	2.236	0.399
	2	4.747	99.278
	3	7.035	0.323

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 (°C)	Humidity (%)	Ventilation Rate (L/min)		Air Change (time/h)	
	Mean ± S.D.	Mean ± S.D.	Mean ± S.D.* <sup>1</sup>	Mean ± S.D.* <sup>2</sup>	Mean* <sup>1</sup>	Mean* <sup>2</sup>
Control	22.1 ± 0.2	57.9 ± 0.6	52.3 ± 0.2	104.6 ± 0.2	6.0	12.1
5 ppm	22.2 ± 0.1	54.7 ± 1.5	52.3 ± 0.2	104.6 ± 0.2	6.0	12.1
10 ppm	21.9 ± 0.1	54.2 ± 1.7	52.6 ± 0.1	104.8 ± 0.3	6.1	12.1
20 ppm	22.1 ± 0.1	53.4 ± 2.9	52.3 ± 0.2	104.7 ± 0.3	6.0	12.1
40 ppm	22.3 ± 0.1	52.2 ± 2.9	52.3 ± 0.3	104.8 ± 0.2	6.0	12.1
80 ppm	22.0 ± 0.1	52.3 ± 3.5	52.5 ± 0.2	104.8 ± 0.2	6.1	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
<b>Hematology</b>			
Red blood cell (RBC)	Light scattering method <sup>1)</sup>	$\times 10^6/\mu\text{L}$	2
Hemoglobin(Hgb)	Cyanmethemoglobin method <sup>1)</sup>	g/dL	1
Hematocrit(Hct)	Calculated as $\text{RBC} \times \text{MCV}/10$ <sup>1)</sup>	%	1
Mean corpuscular volume(MCV)	Light scattering method <sup>1)</sup>	fL	1
Mean corpuscular hemoglobin(MCH)	Calculated as $\text{Hgb}/\text{RBC} \times 10$ <sup>1)</sup>	pg	1
Mean corpuscular hemoglobin concentration (MCHC)	Calculated as $\text{Hgb}/\text{Hct} \times 100$ <sup>1)</sup>	g/dL	1
Platelet	Light scattering method <sup>1)</sup>	$\times 10^3/\mu\text{L}$	0
Reticulocyte	Light scattering method <sup>1)</sup>	%	1
White blood cell(WBC)	Light scattering method <sup>1)</sup>	$\times 10^3/\mu\text{L}$	2
Differential WBC	Light scattering method <sup>1)</sup>	%	0
<b>Biochemistry</b>			
Total protein(TP)	Biuret method <sup>2)</sup>	g/dL	1
Albumin (Alb)	BCG method <sup>2)</sup>	g/dL	1
A/G ratio	Calculated as $\text{Alb}/(\text{TP} - \text{Alb})$ <sup>2)</sup>	—	1
T-bilirubin	Azobilirubin method <sup>2)</sup>	mg/dL	2
Glucose	GlcK·G-6-PDH method <sup>2)</sup>	mg/dL	0
T-cholesterol	CE·COD·POD method <sup>2)</sup>	mg/dL	0
Triglyceride	MGLP·GK·GPO·POD method <sup>2)</sup>	mg/dL	0
Phospholipid	PLD·ChOD·POD method <sup>2)</sup>	mg/dL	0
Aspartate aminotransferase (AST)	JSCC method <sup>2)</sup>	IU/L	0
Alanine aminotransferase (ALT)	JSCC method <sup>2)</sup>	IU/L	0
Lactate dehydrogenase (LDH)	JSCC method <sup>2)</sup>	IU/L	0
Alkaline phosphatase (ALP)	JSCC method <sup>2)</sup>	IU/L	0
$\gamma$ -Glutamyl transpeptidase ( $\gamma$ -GTP)	JSCC method <sup>2)</sup>	IU/L	0
Creatine kinase (CK)	JSCC method <sup>2)</sup>	IU/L	0
Urea nitrogen	Urease·GLDH method <sup>2)</sup>	mg/dL	1
Sodium	Ion selective electrode method <sup>2)</sup>	mEq/L	0
Potassium	Ion selective electrode method <sup>2)</sup>	mEq/L	1
Chloride	Ion selective electrode method <sup>2)</sup>	mEq/L	0
Calcium	OCPC method <sup>2)</sup>	mg/dL	1
Inorganic phosphorus	PNP·XOD·POD method <sup>2)</sup>	mg/dL	1

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

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