複層カーボンナノチューブ（MWCNT）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：0773

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APPENDIX 1

AEROSOL PARTICLE SIZE DISTRIBUTION ANALYSIS

Aerosol Particle Size Distribution Analysis (1)

[0.2 mg/m^3]

Sampling time: 360 min, Flow rate: 10 L/min

Stage No. (Cut-points)	Collection weight (mg)	Collection weight ratio (%)	Cumulative frequency (%)
1 (10.0 μm)	0.032	9.3	100.0
2 (5.6 μm)	0.130	37.9	90.7
3 (3.2 μm)	0.078	22.7	52.8
4 (1.8 μm)	0.037	10.8	30.0
5 (1.0 μm)	0.023	6.7	19.2
6 (0.56 μm)	0.017	5.0	12.5
7 (0.32 μm)	0.016	4.7	7.6
8 (0.18 μm)	0.006	1.7	2.9
9 (0.10 μm)	0.003	0.9	1.2
10 (0.056 μm)	0.001	0.3	0.3
11 (0.032 μm)	0.000	0.0	0.0
12 (0.018 μm)	0.000	0.0	0.0
13 (0.010 μm)	0.000	0.0	0.0
final (～0.010 μm)	0.000	0.0	0.0
Total	0.343	100.0	—

Aerosol Particle Size Distribution Analysis (2)

[1 mg/m^3]

Sampling time: 120 min, Flow rate: 10 L/min

Stage No. (Cut-points)	Collection weight (mg)	Collection weight ratio (%)	Cumulative frequency (%)
1 (10.0 μm)	0.098	8.4	100.0
2 (5.6 μm)	0.337	29.1	91.6
3 (3.2 μm)	0.330	28.4	62.5
4 (1.8 μm)	0.197	17.0	34.1
5 (1.0 μm)	0.088	7.6	17.1
6 (0.56 μm)	0.043	3.7	9.5
7 (0.32 μm)	0.028	2.4	5.8
8 (0.18 μm)	0.020	1.7	3.4
9 (0.10 μm)	0.011	0.9	1.6
10 (0.056 μm)	0.007	0.6	0.7
11 (0.032 μm)	0.001	0.1	0.1
12 (0.018 μm)	0.000	0.0	0.0
13 (0.010 μm)	0.000	0.0	0.0
final (～0.010 μm)	0.000	0.0	0.0
Total	1.160	100.0	―

Aerosol Particle Size Distribution Analysis (3)

[5 mg/m^3]

Sampling time: 30 min, Flow rate: 10 L/min

Stage No. (Cut-points)	Collection weight (mg)	Collection weight ratio (%)	Cumulative frequency (%)
1 (10.0 μm)	0.106	6.9	100.0
2 (5.6 μm)	0.438	28.4	93.1
3 (3.2 μm)	0.442	28.7	64.7
4 (1.8 μm)	0.283	18.4	36.1
5 (1.0 μm)	0.143	9.3	17.7
6 (0.56 μm)	0.085	5.5	8.4
7 (0.32 μm)	0.032	2.1	2.9
8 (0.18 μm)	0.006	0.4	0.8
9 (0.10 μm)	0.006	0.4	0.5
10 (0.056 μm)	0.001	0.1	0.1
11 (0.032 μm)	0.000	0.0	0.0
12 (0.018 μm)	0.000	0.0	0.0
13 (0.010 μm)	0.000	0.0	0.0
final (～0.010 μm)	0.000	0.0	0.0
Total	1.542	100.0	—

APPENDIX 2

ENVIRONMENTAL CONDITIONS OF INHALATION CHAMBER IN THE 2-WEEK INHALATION STUDY OF MWCNT

ENVIRONMENTAL CONDITIONS OF INHALATION CHAMBER
IN THE 2-WEEK INHALATION STUDY OF MWCNT

Exposure period

Group Name	Temperature (℃) Mean ± S.D.	Humidity (%) Mean ± S.D.	Ventilation Rate (L/min) Mean ± S.D.	Air Change (time/h) Mean
Control	22.1 ± 0.2	55.8 ± 1.5	247.3 ± 2.0	12.0
0.2 mg/m^3	22.5 ± 0.2	57.0 ± 1.7	249.2 ± 1.2	12.1
1 mg/m^3	22.4 ± 0.3	54.6 ± 2.1	249.3 ± 1.8	12.1
5 mg/m^3	22.5 ± 0.3	54.8 ± 2.1	251.2 ± 2.0	12.2

After exposure period

Group Name	Temperature (℃) Mean ± S.D.	Humidity (%) Mean ± S.D.	Ventilation Rate (L/min) Mean ± S.D.	Air Change (time/h) Mean
Control	22.2 ± 0.2	56.3 ± 0.5	247.7 ± 2.3	12.0
0.2 mg/m^3	22.6 ± 0.1	55.8 ± 0.4	249.6 ± 2.4	12.1
1 mg/m^3	22.6 ± 0.1	56.7 ± 0.4	248.6 ± 3.0	12.0
5 mg/m^3	22.6 ± 0.1	56.8 ± 0.4	249.8 ± 3.5	12.1

APPENDIX 3

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

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

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.)