

Pathology - Intergroup Comparison of Pathology Observations

For Study: 02G16015
Title: Subchronic (13 week) brake dust inhalation toxicology study (nose-only) with lifelong follow-up in the rat
Requested By: Dirk Schaudien
Job Number: 49857
Animal Reference: Animal Name
Animals Excluded: 1000, 1001, 1002, 1003, 1010, 1011, 1012, 1013, 1020, 1021, 1022, 1023, 1030, 1031, 1032, 1033, 1050, 1051, 1052, 1053, 1070, 1071, 1072, 1073, 1080, 1081, 1082, 1083, 1084, 1085, 1086, 1087, 1088, 1089, 1090, 1091, 1092, 1093, 1094, 1095, 1096, 1097, 1098, 2000, 2001, 2002, 2003, 2010, 2011, 2012, + others.

Day Numbers: All
Groups: All
Observation Type: Histo - Neoplastic and Non-Neoplastic
Observation Summary: Incidence
Report Format: Group within Sex
Tissues: All
Rationalisation: 18M_PE
Removal Reasons: All
Completed Animals Only: No
Animals with Observations Only: No
Major Pathological Findings Only: No
Split Observations by: GRADE
Split Table by: Sex
Use Alternative Descriptions: No
Repeat First Group on Each Page: No
Style: Landscape - 12 Columns
Include: NVL Tissues; NE Tissues; Neoplastic - QUALIFIERS; TUMOUR TYPE; ORIGIN; CLASSIFICATION; Non-neoplastic - QUALIFIERS; SIZE; DISTRIBUTION

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02G16015 - Subchronic (13 week) brake dust inhalation toxicology study
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Removal Reason: ALL	Male					
	Clean air control	brake dust low	Brake dust mid	Brake dust high	Titanium-dioxide	Chrysotile low
Number of Animals:	4	3	3	4	4	4
Number of Completed Animals:	0	0	0	0	0	0
larynx						
Examined	4	3	3	4	4	4
No Visible Lesions	0	2	1	2	3	2
Dilatation, Submucosal Glands; focal	1	0	1	0	0	0
.... very slight	1	0	1	0	0	0
Infiltration, Inflammatory Cell; focal	1	0	0	0	0	0
.... slight	1	0	0	0	0	0
Infiltration, Mononuclear Cell; (multi)focal	3	1	1	2	1	2
.... very slight	2	1	1	1	1	2
.... slight	1	0	0	1	0	0
liver						
Examined	0	1	0	0	0	0
Adenoma, Hepatocellular; benign	.	1	.	.	.	.
Focus Of Cellular Alteration, Basophilic Nos; focal	.	0	.	.	.	.
.... moderate	.	0	.	.	.	.
lung						
Examined	4	3	3	4	4	4
Accumulation, Fibre-Laden Macrophages; multifocal	0 ¹	0	0	0	0	0
.... very slight	0	0	0	0	0	0

1 [ccc - Group Factor Chi-Squared & Fisher's Exact Test: Chi-Squared p < 0.001]

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	Clean air control	brake dust low	Brake dust mid	Brake dust high	Titanium-dioxide	Chrysotile low
Number of Animals:	4	3	3	4	4	4
Number of Completed Animals:	0	0	0	0	0	0
lung (Continued...)						
.... slight	0 ¹	0	0	0	0	0
Accumulation, Particle-Laden Macrophages; (multi)focal	0 ¹	1	2	4 f ⁺	4 f ⁺	4 f ⁺
.... very slight	0 ¹	1	2	4 f ⁺	4 f ⁺	4 f ⁺
Fibrosis; (multi)focal	0	0	0	0	0	0
.... very slight	0	0	0	0	0	0
Fibrosis; multifocal	0 ¹	0	0	0	0	0
.... slight	0 ¹	0	0	0	0	0
Giant Cells, Syncytial; (multi)focal	0 ¹	0	0	0	0	0
.... very slight	0 ¹	0	0	0	0	0
Giant Cells, Syncytial; multifocal	0 c ⁺	0	0	0	0	0
.... slight	0 c ⁺	0	0	0	0	0
Granuloma, Foreign-Body; multifocal	0	0	0	0	1	0
.... slight	0	0	0	0	1	0
Hyperplasia, Bronchiolo-Alveolar; (multi)focal	0	1	0	1	1	2
.... very slight	0	1	0	1	1	2
Hyperplasia, Bronchiolo-Alveolar; multifocal	0 ¹	0	0	0	0	0
.... slight	0 ¹	0	0	0	0	0
Hyperplasia, Bronchiolo-Alveolar; alveolar type, focal	1	0	0	0	0	0

+ [Footnote is displayed in the Comments and Markers page]

1 [ccc - Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.001]

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	Clean air control	brake dust low	Brake dust mid	Brake dust high	Titanium-dioxide	Chrysotile low
Number of Animals:	4	3	3	4	4	4
Number of Completed Animals:	0	0	0	0	0	0
lung (Continued...)						
.... very slight	1	0	0	0	0	0
Hyperplasia, Bronchiolo-Alveolar; alveolar type with atypia, focal	0	0	0	0	0	0
.... very severe	0	0	0	0	0	0
Hyperplasia, Neuroendocrine Cell; focal	0	0	0	0	1	0
.... slight	0	0	0	0	1	0
Infiltration, Inflammatory Cell; (multi)focal	0 ¹	0	0	0	0	0
.... very slight	0 ¹	0	0	0	0	0
Infiltration, Inflammatory Cell; (multi)focal	0 ¹	0	0	0	1	1
.... slight	0 ¹	0	0	0	0	0
.... very slight	0 ¹	0	0	0	1	1
Infiltration, Inflammatory Cell; multifocal	0 ¹	0	0	0	0	0
.... slight	0 ¹	0	0	0	0	0
Infiltration, Mononuclear Cell; (multi)focal	1	1	0	2	0	0
.... very slight	1	1	0	2	0	0
Infiltration, Mononuclear Cell; multifocal	0	0	0	0	0	1
.... slight	0	0	0	0	0	1
Inflammation, Chronic; (multi)focal	1	0	0	1	0	1
.... very slight	1	0	0	1	0	1

1 [cc - Group Factor Chi-Squared & Fisher's Exact Test: Chi-Squared p < 0.001]

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Removal Reason: ALL	Male					
	Clean air control	brake dust low	Brake dust mid	Brake dust high	Titanium-dioxide	Chrysotile low
Number of Animals:	4	3	3	4	4	4
Number of Completed Animals:	0	0	0	0	0	0
lung (Continued...)						
Lipoproteinosis, Alveolar; multifocal	0	0	0	0	0	0
.... slight	0	0	0	0	0	0
Macrophage Aggregation, Alveolar; (multi)focal	3 c ¹	3	1	1	0	1
.... very slight	2	2	0	0	0	1
.... slight	1	1	1	1	0	0
Metaplasia, Chondro-Osseous; (multi)focal	1	0	1	1	0	1
.... very slight	1	0	1	0	0	1
.... slight	0	0	0	1	0	0
Microgranuloma; (multi)focal	0 +	0	0	0	0	0
.... very slight	0 +	0	0	0	0	0
Microgranuloma; multifocal	0 +	0	0	0	0	0
.... slight	0 +	0	0	0	0	0
Wagner Grade 2	0 +	1	2	4 f ⁺	4 f ⁺	4 f ⁺
Wagner Grade 4	0 +	0	0	0	0	0
Wagner Grade 1	4 +	2	1	0 f ⁺	0 f ⁺	0 f ⁺
Accumulation, Particle-Laden Macrophages, Balt; (multi)focal	0 +	0	1	3	4 f ⁺	1
.... very slight	0 +	0	1	3	4 f ⁺	1

+ [Footnote is displayed in the Comments and Markers page]

1 [c - Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.05]

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Removal Reason: ALL	Male					
	Clean air control	brake dust low	Brake dust mid	Brake dust high	Titanium-dioxide	Chrysotile low
Number of Animals:	4	3	3	4	4	4
Number of Completed Animals:	0	0	0	0	0	0
lung (Continued...)						
Accumulation, Fibre-Laden Macrophages, Balt; (multi)focal	0 ¹	0	0	0	0	0
.... very slight	0 ¹	0	0	0	0	0
lung associated lymph nodes (Iain)						
Examined	4	3	3	4	4	4
No Visible Lesions	4	3	1	0	1	4
Not Examined: No Significant Tissue Present In Section	0	0	0	0	0	0
Accumulation, Fibre-Laden Macrophages; (multi)focal	0	0	0	0	0	0
.... very slight	0	0	0	0	0	0
Accumulation, Fibre-Laden Macrophages; multifocal	0 ^{c+}	0	0	0	0	0
.... slight	0 ^{c+}	0	0	0	0	0
Accumulation, Particle-Laden Macrophages; (multi)focal	0 ¹	0	2	4 ^{f+}	2	0
.... very slight	0 ¹	0	2	4 ^{f+}	2	0
Accumulation, Particle-Laden Macrophages; multifocal	0	0	0	0	1	0
.... slight	0	0	0	0	1	0
skin/subcutaneous tissue						
Examined	3	0	0	0	0	0

+ [Footnote is displayed in the Comments and Markers page]

1 [cc - Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.01]

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Removal Reason: ALL	Male					
	Clean air control	brake dust low	Brake dust mid	Brake dust high	Titanium-dioxide	Chrysotile low
Number of Animals:	4	3	3	4	4	4
Number of Completed Animals:	0	0	0	0	0	0
skin/subcutaneous tissue (Continued...)						
Hemorrhage; focal	1	.	.	.	.	.
.... moderate	1	.	.	.	.	.
Hyperplasia, Epithelial; squamous, focal	1	.	.	.	.	.
.... severe	1	.	.	.	.	.
Inflammation, Chronic Active; ulcerated, focal	1	.	.	.	.	.
.... severe	1	.	.	.	.	.
Inflammation, Chronic Active; focal	1	.	.	.	.	.
.... slight	1	.	.	.	.	.
Laceration; focal	1	.	.	.	.	.
.... slight	1	.	.	.	.	.
trachea						
Examined	4	3	3	4	4	4
No Visible Lesions	2	3	2	4	3	3
Infiltration, Mononuclear Cell; (multi)focal	2	0	1	0	1	1
.... very slight	2	0	1	0	1	1
thymus						
Examined	0	0	0	0	0	1
Thymoma, [M]; malignant	1

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	Clean air control	brake dust low	Brake dust mid	Brake dust high	Titanium-dioxide	Chrysotile low
Number of Animals:	4	3	3	4	4	4
Number of Completed Animals:	0	0	0	0	0	0
pituitary gland						
Examined	1	0	1	0	0	0
Adenoma, Pars Distalis; benign	1	.	1	.	.	.
kidney						
Examined	0	0	1	0	0	0
Nephropathy, Chronic Progressive; multifocal	.	.	1	.	.	.
.... slight	.	.	1	.	.	.
testis						
Examined	0	0	1	0	0	0
Adenoma, Interstitial (Leydig) Cell; benign	.	.	0	.	.	.
Atrophy, Tubular; multifocal	.	.	0	.	.	.
.... very slight	.	.	0	.	.	.
Atrophy, Tubular; diffuse	.	.	1	.	.	.
.... severe	.	.	1	.	.	.
epididymis						
Examined	0	0	0	0	0	0
Reduced Sperm, Luminal; diffuse
.... very severe
seminal vesicles						
Examined	0	0	0	0	0	0

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	Clean air control	brake dust low	Brake dust mid	Brake dust high	Titanium-dioxide	Chrysotile low
Number of Animals:	4	3	3	4	4	4
Number of Completed Animals:	0	0	0	0	0	0
seminal vesicles (Continued...)						
Atrophy; diffuse	.	.	.	.	.	.
.... slight
thyroid gland						
Examined	0	0	0	1	0	0
Carcinoma, Follicular Cell; malignant	.	.	.	1	.	.

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Removal Reason: ALL	Male		
	Chrysotile high	Crocido-lite	Amosite
Number of Animals:	1	4	3
Number of Completed Animals:	0	0	0
larynx			
Examined	1	4	3
No Visible Lesions	1	1	3
Dilatation, Submucosal Glands; focal	0	2	0
.... very slight	0	2	0
Infiltration, Inflammatory Cell; focal	0	0	0
.... slight	0	0	0
Infiltration, Mononuclear Cell; (multi)focal	0	1	0
.... very slight	0	0	0
.... slight	0	1	0
liver			
Examined	0	1	0
Adenoma, Hepatocellular; benign	.	0	.
Focus Of Cellular Alteration, Basophilic Nos; focal	.	1	.
.... moderate	.	1	.
lung			
Examined	1	4	3
Accumulation, Fibre-Laden Macrophages; multifocal	0	4 f ¹	3 f ¹
.... very slight	0	1	0

1 [f - Test: Fisher's Exact 2 Sided p < 0.05]

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Removal Reason: ALL	Male		
	Chrysotile high	Crocidolite	Amosite
Number of Animals:	1	4	3
Number of Completed Animals:	0	0	0
lung (Continued...)			
.... slight	0	3	3 f ¹
Accumulation, Particle-Laden Macrophages; (multi)focal	1	0	0
.... very slight	1	0	0
Fibrosis; (multi)focal	0	1	0
.... very slight	0	1	0
Fibrosis; multifocal	0	3	3 f ¹
.... slight	0	3	3 f ¹
Giant Cells, Syncytial; (multi)focal	0	4 f ¹	1
.... very slight	0	4 f ¹	1
Giant Cells, Syncytial; multifocal	0	0	2
.... slight	0	0	2
Granuloma, Foreign-Body; multifocal	0	0	0
.... slight	0	0	0
Hyperplasia, Bronchiolo-Alveolar; (multi)focal	1	1	0
.... very slight	1	1	0
Hyperplasia, Bronchiolo-Alveolar; multifocal	0	3	3 f ¹
.... slight	0	3	3 f ¹
Hyperplasia, Bronchiolo-Alveolar; alveolar type, focal	0	0	0

1 [f - Test: Fisher's Exact 2 Sided p < 0.05]

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Removal Reason: ALL	Male		
	Chrysotile high	Crocidolite	Amosite
Number of Animals:	1	4	3
Number of Completed Animals:	0	0	0
lung (Continued...)			
.... very slight	0	0	0
Hyperplasia, Bronchiolo-Alveolar; alveolar type with atypia, focal	0	1	1
.... very severe	0	1	1
Hyperplasia, Neuroendocrine Cell; focal	0	0	0
.... slight	0	0	0
Infiltration, Inflammatory Cell; (multi)focal	0	4 f ¹	0
.... very slight	0	4 f ¹	0
Infiltration, Inflammatory Cell; (multi)focal	0	4 f ¹	3 f ¹
.... slight	0	0	3 f ¹
.... very slight	0	4 f ¹	3 f ¹
Infiltration, Inflammatory Cell; multifocal	0	0	3 f ¹
.... slight	0	0	3 f ¹
Infiltration, Mononuclear Cell; (multi)focal	0	0	0
.... very slight	0	0	0
Infiltration, Mononuclear Cell; multifocal	0	0	0
.... slight	0	0	0
Inflammation, Chronic; (multi)focal	0	0	0
.... very slight	0	0	0

1 [f - Test: Fisher's Exact 2 Sided p < 0.05]

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Removal Reason: ALL	Male		
	Chrysotile high	Crocidolite	Amosite
Number of Animals:	1	4	3
Number of Completed Animals:	0	0	0
lung (Continued...)			
Lipoproteinosis, Alveolar; multifocal	0	0	1
.... slight	0	0	1
Macrophage Aggregation, Alveolar; (multi)focal	0	0	0
.... very slight	0	0	0
.... slight	0	0	0
Metaplasia, Chondro-Osseous; (multi)focal	0	0	1
.... very slight	0	0	1
.... slight	0	0	0
Microgranuloma; (multi)focal	0	3	0
.... very slight	0	3	0
Microgranuloma; multifocal	0	0	3 f ¹
.... slight	0	0	3 f ¹
Wagner Grade 2	1	0	0
Wagner Grade 4	0	4 f ¹	3 f ¹
Wagner Grade 1	0	0 f ¹	0 f ¹
Accumulation, Particle-Laden Macrophages, Balt; (multi)focal	1	0	0
.... very slight	1	0	0

1 [f - Test: Fisher's Exact 2 Sided p < 0.05]

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Removal Reason: ALL	Male		
	Chrysotile high	Crocidolite	Amosite
Number of Animals:	1	4	3
Number of Completed Animals:	0	0	0
lung (Continued...)			
Accumulation, Fibre-Laden Macrophages, Balt; (multi)focal	0	3	2
.... very slight	0	3	2
lung associated lymph nodes (Iain)			
Examined	0	4	3
No Visible Lesions	.	1	0
Not Examined: No Significant Tissue Present In Section	1	0	0
Accumulation, Fibre-Laden Macrophages; (multi)focal	.	1	1
.... very slight	.	1	1
Accumulation, Fibre-Laden Macrophages; multifocal	.	2	2
.... slight	.	2	2
Accumulation, Particle-Laden Macrophages; (multi)focal	.	0	0
.... very slight	.	0	0
Accumulation, Particle-Laden Macrophages; multifocal	.	0	0
.... slight	.	0	0
skin/subcutaneous tissue			
Examined	0	0	0

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	Chrysotile high	Crocido-lite	Amosite
Number of Animals:	1	4	3
Number of Completed Animals:	0	0	0
skin/subcutaneous tissue (Continued...)			
Hemorrhage; focal	.	.	.
.... moderate	.	.	.
Hyperplasia, Epithelial; squamous, focal	.	.	.
.... severe	.	.	.
Inflammation, Chronic Active; ulcerated, focal	.	.	.
.... severe	.	.	.
Inflammation, Chronic Active; focal	.	.	.
.... slight	.	.	.
Laceration; focal	.	.	.
.... slight	.	.	.
trachea			
Examined	1	4	3
No Visible Lesions	0	3	2
Infiltration, Mononuclear Cell; (multi)focal	1	1	1
.... very slight	1	1	1
thymus			
Examined	0	0	0
Thymoma, [M]; malignant	.	.	.

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Removal Reason: ALL	Male		
	Chrysotile high	Crocidolite	Amosite
Number of Animals:	1	4	3
Number of Completed Animals:	0	0	0
pituitary gland			
Examined	0	0	0
Adenoma, Pars Distalis; benign	.	.	.
kidney			
Examined	0	0	0
Nephropathy, Chronic Progressive; multifocal	.	.	.
.... slight	.	.	.
testis			
Examined	0	1	0
Adenoma, Interstitial (Leydig) Cell; benign	.	1	.
Atrophy, Tubular; multifocal	.	1	.
.... very slight	.	1	.
Atrophy, Tubular; diffuse	.	0	.
.... severe	.	0	.
epididymis			
Examined	0	1	0
Reduced Sperm, Luminal; diffuse	.	1	.
.... very severe	.	1	.
seminal vesicles			
Examined	0	1	0

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Removal Reason: ALL	Male		
	Chrysotile high	Crocidolite	Amosite
Number of Animals:	1	4	3
Number of Completed Animals:	0	0	0
seminal vesicles (Continued...)			
Atrophy; diffuse	.	1	.
.... slight	.	1	.
thyroid gland			
Examined	0	0	0
Carcinoma, Follicular Cell; malignant	.	.	.

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Comments and Markers

Removal Reason	Sex	Group	Measurement	Marker
ALL	Male	1	lung : Accumulation, Fibre-Laden Macrophages; multifocal <i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.001	ccc
ALL	Male	1	lung : Accumulation, Fibre-Laden Macrophages; multifocal, slight <i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.001	ccc
ALL	Male	1	lung : Accumulation, Particle-Laden Macrophages; (multi)focal <i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.001	ccc
ALL	Male	4	lung : Accumulation, Particle-Laden Macrophages; (multi)focal <i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	f
ALL	Male	5	lung : Accumulation, Particle-Laden Macrophages; (multi)focal <i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	f
ALL	Male	6	lung : Accumulation, Particle-Laden Macrophages; (multi)focal <i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	f
ALL	Male	1	lung : Accumulation, Particle-Laden Macrophages; (multi)focal, very slight <i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.001	ccc
ALL	Male	4	lung : Accumulation, Particle-Laden Macrophages; (multi)focal, very slight <i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	f
ALL	Male	5	lung : Accumulation, Particle-Laden Macrophages; (multi)focal, very slight <i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	f
ALL	Male	6	lung : Accumulation, Particle-Laden Macrophages; (multi)focal, very slight <i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	f
ALL	Male	1	lung : Fibrosis; multifocal <i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.001	ccc

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Comments and Markers

Removal Reason	Sex	Group	Measurement	Marker
ALL	Male	1	lung : Fibrosis; multifocal, slight <i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.001	ccc
ALL	Male	1	lung : Giant Cells, Syncytial; (multi)focal <i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.001	ccc
ALL	Male	1	lung : Giant Cells, Syncytial; (multi)focal, very slight <i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.001	ccc
ALL	Male	1	lung : Giant Cells, Syncytial; multifocal <i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.05	c
ALL	Male	1	lung : Giant Cells, Syncytial; multifocal, slight <i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.05	c
ALL	Male	1	lung : Hyperplasia, Bronchiolo-Alveolar; multifocal <i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.001	ccc
ALL	Male	1	lung : Hyperplasia, Bronchiolo-Alveolar; multifocal, slight <i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.001	ccc
ALL	Male	1	lung : Infiltration, Inflammatory Cell; (multi)focal <i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.001	ccc
ALL	Male	1	lung : Infiltration, Inflammatory Cell; (multi)focal, very slight <i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.001	ccc
ALL	Male	1	lung : Infiltration, Inflammatory Cell; (multi)focal <i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.001	ccc
ALL	Male	1	lung : Infiltration, Inflammatory Cell; (multi)focal, slight <i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.001	ccc

Pathology - Intergroup Comparison of Pathology Observations

02G16015 - Subchronic (13 week) brake dust inhalation toxicology study
(nose-only) with lifelong follow-up in the rat, 18 months post exposure

Comments and Markers

Removal Reason	Sex	Group	Measurement	Marker
ALL	Male	1	lung : Infiltration, Inflammatory Cell; (multi)focal, very slight <i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.001	ccc
ALL	Male	1	lung : Infiltration, Inflammatory Cell; multifocal <i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.001	ccc
ALL	Male	1	lung : Infiltration, Inflammatory Cell; multifocal, slight <i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.001	ccc
ALL	Male	1	lung : Macrophage Aggregation, Alveolar; (multi)focal <i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.05	c
ALL	Male	1	lung : Microgranuloma; (multi)focal <i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.01	cc
ALL	Male	1	lung : Microgranuloma; (multi)focal, very slight <i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.01	cc
ALL	Male	1	lung : Microgranuloma; multifocal <i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.001	ccc
ALL	Male	1	lung : Microgranuloma; multifocal, slight <i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.001	ccc
ALL	Male	1	lung : Wagner Grade 2 <i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.001	ccc
ALL	Male	4	lung : Wagner Grade 2 <i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	f
ALL	Male	5	lung : Wagner Grade 2 <i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	f

Pathology - Intergroup Comparison of Pathology Observations

02G16015 - Subchronic (13 week) brake dust inhalation toxicology study
(nose-only) with lifelong follow-up in the rat, 18 months post exposure

Comments and Markers

Removal Reason	Sex	Group	Measurement	Marker
ALL	Male	6	lung : Wagner Grade 2	f
			<i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	
ALL	Male	1	lung : Wagner Grade 4	ccc
			<i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.001	
ALL	Male	1	lung : Wagner Grade 1	ccc
			<i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.001	
ALL	Male	4	lung : Wagner Grade 1	f
			<i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	
ALL	Male	5	lung : Wagner Grade 1	f
			<i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	
ALL	Male	6	lung : Wagner Grade 1	f
			<i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	
ALL	Male	1	lung : Accumulation, Particle-Laden Macrophages, Balt; (multi)focal	cc
			<i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.01	
ALL	Male	5	lung : Accumulation, Particle-Laden Macrophages, Balt; (multi)focal	f
			<i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	
ALL	Male	1	lung : Accumulation, Particle-Laden Macrophages, Balt; (multi)focal, very slight	cc
			<i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.01	
ALL	Male	5	lung : Accumulation, Particle-Laden Macrophages, Balt; (multi)focal, very slight	f
			<i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	
ALL	Male	1	lung : Accumulation, Fibre-Laden Macrophages, Balt; (multi)focal	cc
			<i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.01	

Pathology - Intergroup Comparison of Pathology Observations

02G16015 - Subchronic (13 week) brake dust inhalation toxicology study
(nose-only) with lifelong follow-up in the rat, 18 months post exposure

Comments and Markers

Removal Reason	Sex	Group	Measurement	Marker
ALL	Male	1	lung : Accumulation, Fibre-Laden Macrophages, Balt; (multi)focal, very slight <i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.01	cc
ALL	Male	1	lung associated lymph nodes (laln) : Accumulation, Fibre-Laden Macrophages; multifocal <i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.05	c
ALL	Male	1	lung associated lymph nodes (laln) : Accumulation, Fibre-Laden Macrophages; multifocal, slight <i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.05	c
ALL	Male	1	lung associated lymph nodes (laln) : Accumulation, Particle-Laden Macrophages; (multi)focal <i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.01	cc
ALL	Male	4	lung associated lymph nodes (laln) : Accumulation, Particle-Laden Macrophages; (multi)focal <i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	f
ALL	Male	1	lung associated lymph nodes (laln) : Accumulation, Particle-Laden Macrophages; (multi)focal, very slight <i>Comment:</i> Group Factor Chi-Squared & Fisher's Exact: Test: Chi-Squared p < 0.01	cc
ALL	Male	4	lung associated lymph nodes (laln) : Accumulation, Particle-Laden Macrophages; (multi)focal, very slight <i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	f
ALL	Male	8	lung : Accumulation, Fibre-Laden Macrophages; multifocal <i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	f
ALL	Male	9	lung : Accumulation, Fibre-Laden Macrophages; multifocal <i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	f
ALL	Male	9	lung : Accumulation, Fibre-Laden Macrophages; multifocal, slight <i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	f
ALL	Male	9	lung : Fibrosis; multifocal <i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	f

Pathology - Intergroup Comparison of Pathology Observations

02G16015 - Subchronic (13 week) brake dust inhalation toxicology study
(nose-only) with lifelong follow-up in the rat, 18 months post exposure

Comments and Markers

Removal Reason	Sex	Group	Measurement	Marker
ALL	Male	9	lung : Fibrosis; multifocal, slight <i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	f
ALL	Male	8	lung : Giant Cells, Syncytial; (multi)focal <i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	f
ALL	Male	8	lung : Giant Cells, Syncytial; (multi)focal, very slight <i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	f
ALL	Male	9	lung : Hyperplasia, Bronchiolo-Alveolar; multifocal <i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	f
ALL	Male	9	lung : Hyperplasia, Bronchiolo-Alveolar; multifocal, slight <i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	f
ALL	Male	8	lung : Infiltration, Inflammatory Cell; (multi)focal <i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	f
ALL	Male	8	lung : Infiltration, Inflammatory Cell; (multi)focal, very slight <i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	f
ALL	Male	8	lung : Infiltration, Inflammatory Cell; (multi)focal <i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	f
ALL	Male	9	lung : Infiltration, Inflammatory Cell; (multi)focal <i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	f
ALL	Male	9	lung : Infiltration, Inflammatory Cell; (multi)focal, slight <i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	f
ALL	Male	8	lung : Infiltration, Inflammatory Cell; (multi)focal, very slight <i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	f

Pathology - Intergroup Comparison of Pathology Observations

02G16015 - Subchronic (13 week) brake dust inhalation toxicology study
(nose-only) with lifelong follow-up in the rat, 18 months post exposure

Comments and Markers

Removal Reason	Sex	Group	Measurement	Marker
ALL	Male	9	lung : Infiltration, Inflammatory Cell; (multi)focal, very slight <i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	f
ALL	Male	9	lung : Infiltration, Inflammatory Cell; multifocal <i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	f
ALL	Male	9	lung : Infiltration, Inflammatory Cell; multifocal, slight <i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	f
ALL	Male	9	lung : Microgranuloma; multifocal <i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	f
ALL	Male	9	lung : Microgranuloma; multifocal, slight <i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	f
ALL	Male	8	lung : Wagner Grade 4 <i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	f
ALL	Male	9	lung : Wagner Grade 4 <i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	f
ALL	Male	8	lung : Wagner Grade 1 <i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	f
ALL	Male	9	lung : Wagner Grade 1 <i>Comment:</i> Test: Fisher's Exact 2 Sided p < 0.05	f

Pathology - Intergroup Comparison of Pathology Observations

02G16015 - Subchronic (13 week) brake dust inhalation toxicology study
(nose-only) with lifelong follow-up in the rat, 18 months post exposure

Key Page**Measurement/Statistics**

<u>Measurement</u>	<u>Descriptive</u>	<u>Comparative</u>	<u>Arithmetic/Adjusted</u>	<u>Transformation</u>
Pathology Observation	Count Positives	Chi-Squared & Fisher's Exact		

Group Information

<u>Short Name</u>	<u>Long Name</u>	<u>Report Headings</u>	
1	Clean air	Clean air	control
2	brake dust low	brake dust	low
3	brake dust mid	Brake dust	mid
4	brake dust high	Brake dust	high
5	Particel Control	Titanium-	dioxide
6	Chrysotile low	Chrysotile	low
7	Chrysotile high	Chrysotile	high
8	Crocidolite	Crocido-	lite
9	Amosite	Amosite	

Removal Reason Grouping

<u>Grouping Name</u>	<u>Abbreviation</u>	<u>Removal Reasons</u>
Killed - Terminal Kill	TeKi	Killed - Terminal Kill
Killed - Moribund	US	Killed - Moribund
Found Dead	FD	Found Dead

Pathology - Intergroup Comparison of Pathology Observations

02G16015 - Subchronic (13 week) brake dust inhalation toxicology study
(nose-only) with lifelong follow-up in the rat, 18 months post exposure

Key Page

Rationalisation Details

Rationalisation: 18M_PE

Merges

larynx, Hemorrhage, subepithelial, (multi)focal, very slight

Is used to report the following findings:

larynx, Hemorrhage, subepithelial, focal, very slight

larynx, Hemorrhage, subepithelial, multifocal, very slight

larynx, Infiltration, Mononuclear Cell, subepithelial, (multi)focal, very slight

Is used to report the following findings:

larynx, Infiltration, Mononuclear Cell, subepithelial, focal, very slight

larynx, Infiltration, Mononuclear Cell, subepithelial, multifocal, very slight

larynx, Infiltration, Mononuclear Cell, subepithelial, (multi)focal, slight

Is used to report the following findings:

larynx, Infiltration, Mononuclear Cell, subepithelial, focal, slight

larynx, Infiltration, Mononuclear Cell, subepithelial, multifocal, slight

lung, Accumulation, Particle-Laden Macrophages, alveolar/interstitial, (multi)focal, very slight

Is used to report the following findings:

lung, Accumulation, Particle-Laden Macrophages, alveolar/interstitial, focal, very slight

lung, Accumulation, Particle-Laden Macrophages, alveolar/interstitial, multifocal, very slight

lung, Fibrosis, interstitial, (multi)focal, very slight

Is used to report the following findings:

lung, Fibrosis, interstitial, focal, very slight

lung, Fibrosis, interstitial, multifocal, very slight

Pathology - Intergroup Comparison of Pathology Observations

02G16015 - Subchronic (13 week) brake dust inhalation toxicology study
(nose-only) with lifelong follow-up in the rat, 18 months post exposure

Key Page**Merges (Continued)**

lung, Giant Cells, Syncytial, (multi)focal, very slight

Is used to report the following findings:

lung, Giant Cells, Syncytial, focal, very slight

lung, Giant Cells, Syncytial, multifocal, very slight

lung, Hyperplasia, Bronchiolo-Alveolar, (multi)focal, very slight

Is used to report the following findings:

lung, Hyperplasia, Bronchiolo-Alveolar, focal, very slight

lung, Hyperplasia, Bronchiolo-Alveolar, multifocal, very slight

lung, Infiltration, Inflammatory Cell, peribronchiolar, (multi)focal, very slight

Is used to report the following findings:

lung, Infiltration, Inflammatory Cell, peribronchiolar, focal, very slight

lung, Infiltration, Inflammatory Cell, peribronchiolar, multifocal, very slight

lung, Infiltration, Inflammatory Cell, peribronchiolar, (multi)focal, slight

Is used to report the following findings:

lung, Infiltration, Inflammatory Cell, peribronchiolar, focal, slight

lung, Infiltration, Inflammatory Cell, peribronchiolar, multifocal, slight

lung, Infiltration, Inflammatory Cell, perivascular, (multi)focal, very slight

Is used to report the following findings:

lung, Infiltration, Inflammatory Cell, perivascular, focal, very slight

lung, Infiltration, Inflammatory Cell, perivascular, multifocal, very slight

lung, Infiltration, Inflammatory Cell, perivascular, (multi)focal, slight

Is used to report the following findings:

lung, Infiltration, Inflammatory Cell, perivascular, focal, slight

Pathology - Intergroup Comparison of Pathology Observations

02G16015 - Subchronic (13 week) brake dust inhalation toxicology study
(nose-only) with lifelong follow-up in the rat, 18 months post exposure

Key Page**Merges (Continued)**

lung, Infiltration, Inflammatory Cell, perivascular, multifocal, slight

lung, Infiltration, Inflammatory Cell, alveolar/interstitial, (multi)focal, very slight

Is used to report the following findings:

lung, Infiltration, Inflammatory Cell, alveolar/interstitial, focal, very slight

lung, Infiltration, Inflammatory Cell, alveolar/interstitial, multifocal, very slight

lung, Infiltration, Mononuclear Cell, interstitial, (multi)focal, very slight

Is used to report the following findings:

lung, Infiltration, Mononuclear Cell, interstitial, focal, very slight

lung, Infiltration, Mononuclear Cell, interstitial, multifocal, very slight

lung, Infiltration, Mononuclear Cell, pleural, (multi)focal, very slight

Is used to report the following findings:

lung, Infiltration, Mononuclear Cell, pleural, focal, very slight

lung, Infiltration, Mononuclear Cell, pleural, multifocal, very slight

lung, Inflammation, Chronic, (multi)focal, very slight

Is used to report the following findings:

lung, Inflammation, Chronic, focal, very slight

lung, Inflammation, Chronic, multifocal, very slight

lung, Macrophage Aggregation, Alveolar, (multi)focal, very slight

Is used to report the following findings:

lung, Macrophage Aggregation, Alveolar, focal, very slight

lung, Macrophage Aggregation, Alveolar, multifocal, very slight

lung, Macrophage Aggregation, Alveolar, (multi)focal, slight

Is used to report the following findings:

Pathology - Intergroup Comparison of Pathology Observations

02G16015 - Subchronic (13 week) brake dust inhalation toxicology study
(nose-only) with lifelong follow-up in the rat, 18 months post exposure

Key Page**Merges (Continued)**

lung, Macrophage Aggregation, Alveolar, focal, slight

lung, Macrophage Aggregation, Alveolar, multifocal, slight

lung, Metaplasia, Chondro-Osseous, (multi)focal, very slight

Is used to report the following findings:

lung, Metaplasia, Chondro-Osseous, focal, very slight

lung, Metaplasia, Chondro-Osseous, multifocal, very slight

lung, Metaplasia, Chondro-Osseous, (multi)focal, slight

Is used to report the following findings:

lung, Metaplasia, Chondro-Osseous, focal, slight

lung, Metaplasia, Chondro-Osseous, multifocal, slight

lung, Microgranuloma, (multi)focal, very slight

Is used to report the following findings:

lung, Microgranuloma, focal, very slight

lung, Microgranuloma, multifocal, very slight

lung, Accumulation, Particle-Laden Macrophages, Balt, (multi)focal, very slight

Is used to report the following findings:

lung, Accumulation, Particle-Laden Macrophages, Balt, focal, very slight

lung, Accumulation, Particle-Laden Macrophages, Balt, multifocal, very slight

lung, Accumulation, Fibre-Laden Macrophages, Balt, (multi)focal, very slight

Is used to report the following findings:

lung, Accumulation, Fibre-Laden Macrophages, Balt, focal, very slight

lung, Accumulation, Fibre-Laden Macrophages, Balt, multifocal, very slight

lung associated lymph nodes (laln), Accumulation, Fibre-Laden Macrophages, (multi)focal, very slight

Pathology - Intergroup Comparison of Pathology Observations

02G16015 - Subchronic (13 week) brake dust inhalation toxicology study
(nose-only) with lifelong follow-up in the rat, 18 months post exposure

Key Page**Merges (Continued)**

Is used to report the following findings:

lung associated lymph nodes (ln), Accumulation, Fibre-Laden Macrophages, focal, very slight

lung associated lymph nodes (ln), Accumulation, Fibre-Laden Macrophages, multifocal, very slight

lung associated lymph nodes (ln), Accumulation, Particle-Laden Macrophages, (multi)focal, very slight

Is used to report the following findings:

lung associated lymph nodes (ln), Accumulation, Particle-Laden Macrophages, focal, very slight

lung associated lymph nodes (ln), Accumulation, Particle-Laden Macrophages, multifocal, very slight

nasal cavity, Hyperplasia, Mucous Cell, (multi)focal, very slight

Is used to report the following findings:

nasal cavity, Hyperplasia, Mucous Cell, focal, very slight

nasal cavity, Hyperplasia, Mucous Cell, multifocal, very slight

nasal cavity, Infiltration, Inflammatory Cell, subepithelial, (multi)focal, very slight

Is used to report the following findings:

nasal cavity, Infiltration, Inflammatory Cell, subepithelial, focal, very slight

nasal cavity, Infiltration, Inflammatory Cell, subepithelial, multifocal, very slight

trachea, Infiltration, Mononuclear Cell, subepithelial, (multi)focal, very slight

Is used to report the following findings:

trachea, Infiltration, Mononuclear Cell, subepithelial, focal, very slight

trachea, Infiltration, Mononuclear Cell, subepithelial, multifocal, very slight

Pathology - Intergroup Comparison of Pathology Observations

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(nose-only) with lifelong follow-up in the rat, 18 months post exposure

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