

Supplementary Table 5: Number of spots and **Geometric** means and range (minimum and maximum) of the monthly-averaged dust concentrations in the Uralasbest factories by calendar year period: 1951-2001

Factory and Unit	Number of spots ^a and Geometric mean (range) of monthly-averaged dust concentrations							
	1951-1955, 1959	1960-1969	1970-1979	1980-1989	1990-2001			
<i>Factory 0 total</i>	10	15.6 (1.9, 1545.0)						
Dust chamber	1	953.1 (526.0, 1545)						
Final product (packaging)	1	4.8 (2.7, 21.0)						
Chrysotile ^b	6	14.1 (3.2, 118.0)						
Krudorasborka ^b	1	6.7 (1.9, 25.2)						
Other ^c	1	4.4 (2.8, 8.1)						
<i>Factory 1 total</i>	99	73.9 (1.2, 1880.0)						
Crushing and sorting - main	30	110.3 (4.2, 783.0)						
Crushing and sorting - drying and boiler	4	19.7 (3.0, 71.3)						
Dust chamber	10	961.6 (220.7, 1880)						
Enrichment - main	25	107.8 (12.3, 1009.4)						
Final product (packaging)	15	18.3 (1.2, 875.0)						
Other ^c	15	10.2 (1.5, 190.0)						
<i>Factory 2 total</i>	175	29.7 (1.2, 2441.7)	360	11.8 (1.2, 292.0)	400	4.8 (0.4, 106.6)	39	4.6 (1.8, 31.8)
Crushing and sorting - main	35	15.4 (1.2, 417.1)	72	11.3 (1.2, 175.0)	77	4.3 (0.8, 38.1)	6	5.1 (2.2, 14.7)
Crushing and sorting - drying and boiler	18	15.5 (2.5, 183.0)	40	9.8 (1.2, 117.8)	40	3.7 (1.4, 29.0)	4	3.2 (2.0, 6.2)
Dry ore warehouse			4	21.6 (1.9, 226.0)	5	16.0 (2.0, 106.6)		
Enrichment - main	72	58.6 (3.7, 1218.7)	161	15.4 (1.4, 292.0)	182	6.1 (1.0, 50.1)	16	6.6 (2.0, 31.8)
Enrichment - dust chamber/bag house filter	6	962.1 (18.3, 2441.7)			21	3.0 (1.5, 36.2)	5	3.0 (1.8, 8.5)
Enrichment - dust/waste bunker	6	26.6 (5.5, 100.0)	17	17.8 (2.4, 133.5)	15	6.8 (2.1, 28.3)	2	6.6 (2.8, 12.2)
Final product (packaging)	14	20.0 (2.8, 485.0)	34	9.5 (1.4, 89.1)	40	4.3 (1.2, 33.5)	4	3.1 (1.9, 10.3)
Other ^c	24	7.1 (1.4, 231.1)	32	4.2 (1.5, 28.8)	20	1.9 (0.4, 3.8)	2	2.0 (1.8, 2.7)

Factory and Unit	Number of spots ^a and Geometric mean (range) of monthly-averaged dust concentrations									
	1951-1955, 1959		1960-1969		1970-1979		1980-1989		1990-2001	
<i>Factory 3 total</i>	130	23.3 (1.0, 1265.0)	338	12.8 (0.7, 650.0)	261	6.2 (1.0, 143.0)				
Crushing and sorting - main	14	27.9 (2.5, 397.0)	59	9.7 (1.8, 190.1)	45	4.5 (1.0, 43.2)				
Crushing and sorting - drying and boiler	24	27.8 (1.9, 517.4)	40	14.7 (1.9, 334.3)	26	7.8 (1.4, 86.4)				
Dry ore warehouse			6	91.4 (2.2, 650.0)	5	24.1 (2.0, 134.0)				
Enrichment - main	40	29.6 (2.1, 842.3)	98	15.8 (2.2, 99.9)	88	7.9 (1.8, 143.0)				
Enrichment - dust chamber/bag house filter	4	348.6 (22.9, 1265.0)	39	11.8 (1.7, 191.8)	25	7.2 (1.4, 60.2)				
Enrichment - dust/waste bunker	13	16.7 (1.6, 1186.2)	20	21.3 (2.7, 140.6)	16	7.5 (2.1, 34.7)				
Final product (packaging)	18	14.9 (1.0, 278.0)	44	15.3 (1.5, 80.0)	40	4.8 (1.0, 33.6)				
Other ^c	17	7.5 (1.5, 184.5)	32	4.4 (0.7, 20.7)	16	2.2 (1.1, 6.9)				
<i>Factory 4 total</i>	33	5.1 (2.0, 25.0)	590	6.3 (0.7, 581.1)	609	3.8 (0.7, 925.0)	537	3.2 (0.2, 198.7)	645	4.2 (0.5, 485.0)
Crushing and sorting - main	8	5.2 (2.0, 21.0)	64	6.6 (1.2, 581.1)	102	4.0 (1.0, 925.0)	125	2.7 (0.2, 198.7)	120	3.6 (0.5, 485.0)
Crushing and sorting - drying and boiler	5	5.4 (2.7, 11.0)	30	5.1 (1.0, 52.6)	27	2.8 (1.1, 11.5)	24	2.6 (0.6, 10.5)	36	3.0 (1.6, 9.8)
Crushing and sorting - dust chamber/bag house filter					2	2.5 (1.8, 6.0)	10	2.0 (1.0, 6.9)	12	2.2 (0.5, 3.8)
Enrichment - main	11	4.5 (2.0, 10.7)	339	6.3 (1.0, 106.1)	328	3.9 (0.8, 36.8)	250	3.7 (0.8, 27.5)	239	5.2 (1.1, 196.0)
Enrichment - dust chamber/bag house filter	1	5.7 (3.2, 11.5)	19	4.5 (1.2, 33.6)	18	3.1 (0.8, 14.9)	16	2.1 (0.9, 16.0)	24	3.1 (1.3, 18.0)
Enrichment - dust/waste bunker	1	4.3 (2.2, 13.0)	19	14.9 (2.0, 141.3)	12	4.2 (1.7, 17.3)	10	4.4 (1.8, 14.2)	12	6.6 (2.1, 37.2)
Final product (packaging)	3	8.6 (3.0, 25.0)	84	7.0 (0.8, 140.3)	97	4.5 (1.1, 53.1)	80	3.6 (0.5, 33.3)	154	4.5 (0.6, 100.0)
Other ^c	4	4.7 (2.2, 22.0)	35	4.0 (0.7, 40.0)	23	1.9 (0.7, 5.2)	22	1.9 (1.0, 6.4)	48	2.4 (0.8, 12.4)
<i>Factory 5 total</i>	73	6.3 (1.3, 359.0)	354	6.3 (0.7, 555.0)	355	3.9 (0.5, 621.0)	434	2.7 (0.2, 303.1)	419	3.5 (0.2, 353.6)
Crushing and sorting - main	18	5.6 (1.5, 102.5)	74	8.9 (0.8, 555.0)	80	4.9 (0.7, 621.0)	83	2.7 (0.2, 303.1)	74	4.3 (0.6, 207.4)
Crushing and sorting - drying and boiler	12	5.9 (1.3, 131.5)	60	5.5 (0.9, 55.2)	55	2.7 (0.5, 19.4)	60	1.7 (0.3, 12.5)	32	2.0 (0.5, 9.4)
Crushing and sorting - dust chamber/bag house filter									8	2.6 (0.9, 17.5)
Enrichment - main	23	6.1 (1.5, 78.6)	124	6.0 (1.3, 56.7)	130	4.4 (1.2, 44.0)	144	3.7 (0.4, 22.5)	174	4.2 (0.3, 353.6)
Enrichment - dust chamber/bag house filter	2	3.9 (1.6, 31.8)	14	4.1 (1.6, 23.2)	10	2.3 (1.4, 6.3)	48	1.6 (0.2, 12.3)	44	2.2 (0.2, 35.2)
Enrichment - dust/waste bunker	4	24.1 (2.5, 359.0)	20	5.4 (1.3, 40.0)	20	3.4 (1.2, 11.9)	20	3.9 (0.6, 19.0)	12	3.8 (1.2, 29.5)
Final product (packaging)	10	14.6 (3.3, 93.6)	40	8.6 (0.7, 125.0)	50	4.2 (1.2, 68.8)	64	2.5 (0.4, 12.5)	63	3.8 (0.2, 262.8)
Other ^c	4	3.6 (1.4, 24.5)	22	3.4 (1.3, 13.9)	10	1.8 (0.8, 3.1)	15	2.2 (1.2, 25.4)	12	2.3 (1.0, 20.9)

Factory and Unit	Number of spots ^a and Geometric mean (range) of monthly-averaged dust concentrations							
	1951-1955, 1959	1960-1969	1970-1979	1980-1989	1990-2001			
<i>Factory 6 total</i>	83	5.0 (0.2, 92.8)	770	3.3 (0.1, 262.2)	649	2.6 (0.1, 196.8)	981	3.1 (0.0, 210.7)
Crushing and sorting - main	31	5.4 (1.1, 64.8)	229	3.5 (1.1, 262.2)	193	2.7 (0.5, 196.8)	294	3.5 (0.2, 210.7)
Crushing and sorting - drying and boiler	1	2.6 (1.5, 5.8)	10	2.7 (1.5, 11.4)	12	1.9 (0.8, 11.4)	12	1.8 (0.6, 6.0)
Crushing and sorting - dust chamber/bag house filter							9	2.7 (1.0, 8.0)
Enrichment - main	44	5.0 (0.7, 30.6)	412	3.8 (0.9, 66.5)	307	3.6 (0.3, 47.7)	472	4.2 (0.5, 96.7)
Enrichment - dust chamber/bag house filter	1	0.3 (0.2, 0.5)	36	0.2 (0.1, 0.9)	40	0.1 (0.1, 0.6)	48	0.1 (0.0, 1.5)
Enrichment - dust/waste bunker	2	20.3 (3.3, 92.8)	35	7.6 (1.7, 89.5)	30	7.4 (1.1, 36.0)	36	8.2 (2.1, 26.6)
Final product (packaging)	4	2.4 (1.0, 5.0)	21	2.2 (1.0, 22.0)	19	2.2 (0.8, 10.4)	59	2.2 (0.6, 15.9)
Mosaic tile			5	3.4 (1.5, 7.3)	10	5.7 (1.3, 16.9)	12	3.9 (1.3, 9.9)
Other ^c			22	3.1 (1.8, 14.2)	38	2.1 (0.8, 37.2)	39	2.1 (0.1, 41.6)

a. Number of distinct measurement spots in a year, sum over unit and period

b. These unit names only existed in the earliest years and combined, cover the functions of the various crushing and sorting and enrichment units

c. Other includes measurements taken in areas of maintenance, engineering, laboratory, and quality control.

Supplementary Table 5A: Number of spots and **Arithmetic** means and range (minimum and maximum) of the monthly-averaged dust concentrations in the Uralasbest factories by calendar year period: 1951-2001

Factory and Unit	Number of spots ^a and Arithmetic mean (range) of monthly-averaged dust concentrations				
	1951-1955, 1959	1960-1969	1970-1979	1980-1989	1990-2001
<i>Factory 0 total</i>	10 108.7 (1.9,1545.0)				
Dust chamber	1 998.1 (526.0,1545)				
Final product (packaging)	1 6.1 (2.7,21.0)				
Chrysotile ^b	6 21.9 (3.2,118.0)				
Krudorasborka ^b	1 8.9 (1.9,25.2)				
Other ^c	1 4.7 (2.8,8.1)				
<i>Factory 1 total</i>	99 203.4 (1.2,1880.0)				
Crushing and sorting - main	30 154.1 (4.2,783.0)				
Crushing and sorting - drying and boiler	4 26.5 (3.0,71.3)				
Dust chamber	10 1018.1 (220.7,1880)				
Enrichment - main	25 159.6 (12.3,1009.4)				
Final product (packaging)	15 38.1 (1.2,875.0)				
Other ^c	15 19.8 (1.5,190.0)				
<i>Factory 2 total</i>	175 103.9 (1.2,2441.7)	360 17.8 (1.2,292.0)	400 6.4 (0.4,106.6)	39 5.8 (1.8,31.8)	
Crushing and sorting - main	35 30.6 (1.2,417.1)	72 16.0 (1.2,175.0)	77 5.2 (0.8,38.1)	6 5.8 (2.2,14.7)	
Crushing and sorting - drying and boiler	18 24.6 (2.5,183.0)	40 12.9 (1.2,117.8)	40 4.4 (1.4,29.0)	4 3.4 (2.0,6.2)	
Dry ore warehouse		4 42.5 (1.9,226.0)	5 27.6 (2.0,106.6)		
Enrichment - main	72 114.9 (3.7,1218.7)	161 22.3 (1.4,292.0)	182 7.5 (1.0,50.1)	16 8.0 (2.0,31.8)	
Enrichment - dust chamber/bag house filter	6 1247 (18.3,2441.7)		21 4.1 (1.5,36.2)	5 3.3 (1.8,8.5)	
Enrichment - dust/waste bunker	6 33.1 (5.5,100.0)	17 25.9 (2.4,133.5)	15 7.9 (2.1,28.3)	2 7.4 (2.8,12.2)	
Final product (packaging)	14 49.0 (2.8,485.0)	34 11.8 (1.4,89.1)	40 5.9 (1.2,33.5)	4 3.5 (1.9,10.3)	
Other ^c	24 14.5 (1.4,231.1)	32 4.8 (1.5,28.8)	20 2.0 (0.4,3.8)	2 2.0 (1.8,2.7)	

Factory and Unit	Number of spots ^a and Arithmetic mean (range) of monthly-averaged dust concentrations									
	1951-1955, 1959		1960-1969		1970-1979		1980-1989		1990-2001	
<i>Factory 3 total</i>	130	58.7 (1.0,1265.0)	338	20.7 (0.7,650.0)	261	8.6 (1.0,143.0)				
Crushing and sorting - main	14	51.7 (2.5,397.0)	59	14.1 (1.8,190.1)	45	5.8 (1.0,43.2)				
Crushing and sorting - drying and boiler	24	51.9 (1.9,517.4)	40	24.5 (1.9,334.3)	26	10.6 (1.4,86.4)				
Dry ore warehouse			6	152.3 (2.2,650)	5	36.7 (2.0,134.0)				
Enrichment - main	40	51.1 (2.1,842.3)	98	19.8 (2.2,99.9)	88	9.9 (1.8,143.0)				
Enrichment - dust chamber/bag house filter	4	427.9 (22.9,1265.0)	39	20.3 (1.7,191.8)	25	9.7 (1.4,60.2)				
Enrichment - dust/waste bunker	13	70.2 (1.6,1186.2)	20	30.9 (2.7,140.6)	16	8.7 (2.1,34.7)				
Final product (packaging)	18	24.5 (1.0,278.0)	44	19.8 (1.5,80.0)	40	6.0 (1.0,33.6)				
Other ^c	17	15.8 (1.6,184.5)	32	5.0 (0.7,20.7)	16	2.3 (1.1,6.9)				
<i>Factory 4 total</i>	33	6.0 (2.0,25.0)	590	9.0 (0.7,581.1)	609	5.6 (0.7,925.0)	537	4.0 (0.2,198.7)	645	6.5 (0.5,485.0)
Crushing and sorting - main	8	6.3 (2.0,21.0)	64	15.1 (1.2,581.1)	102	10.9 (1.0,925.0)	125	3.8 (0.2,198.7)	120	8.1 (0.5,485.0)
Crushing and sorting - drying and boiler	5	5.8 (2.7,11.0)	30	6.7 (1.0,52.6)	27	3.1 (1.1,11.5)	24	2.8 (0.6,10.5)	36	3.2 (1.6,9.8)
Crushing and sorting - dust chamber/bag house filter					2	2.7 (1.8,6.0)	10	2.0 (1.0,6.9)	12	2.2 (0.5,3.8)
Enrichment - main	11	4.9 (2.0,10.7)	339	8.1 (1.0,106.1)	328	4.4 (0.8,36.8)	250	4.3 (0.8,27.5)	239	7.4 (1.1,196.0)
Enrichment - dust chamber/bag house filter	1	6.2 (3.2,11.5)	19	5.6 (1.2,33.6)	18	3.6 (0.8,14.9)	16	2.3 (0.9,16.0)	24	3.4 (1.3,18.0)
Enrichment - dust/waste bunker	1	5.5 (2.2,13.0)	19	19.8 (2.0,141.3)	12	4.8 (1.7,17.3)	10	4.8 (1.8,14.2)	12	7.2 (2.1,37.2)
Final product (packaging)	3	10.8 (3.0,25.0)	84	9.6 (0.8,140.3)	97	6.2 (1.1,53.1)	80	4.5 (0.5,33.3)	154	6.8 (0.6,100.0)
Other ^c	4	5.8 (2.2,22.0)	35	4.6 (0.7,40.0)	23	1.9 (0.7,5.2)	22	2.0 (1.0,6.4)	48	2.6 (0.8,12.4)
<i>Factory 5 total</i>	73	13.2 (1.3,359)	354	9.2 (0.7,555.0)	355	6.8 (0.5,621.0)	434	3.7 (0.2,303.1)	419	5.8 (0.2,353.6)
Crushing and sorting - main	18	9.2 (1.5,102.5)	74	16.5 (0.8,555.0)	80	14.5 (0.7,621.0)	83	4.6 (0.2,303.1)	74	7.0 (0.6,207.4)
Crushing and sorting - drying and boiler	12	9.9 (1.3,131.5)	60	7.1 (0.9,55.2)	55	3.2 (0.5,19.4)	60	1.9 (0.3,12.5)	32	2.4 (0.5,9.4)
Crushing and sorting - dust chamber/bag house filter									8	3.0 (0.9,17.5)
Enrichment - main	23	9.0 (1.5,78.6)	124	7.2 (1.3,56.7)	130	5.2 (1.2,44.0)	144	4.7 (0.4,22.5)	174	6.2 (0.3,353.6)
Enrichment - dust chamber/bag house filter	2	5.7 (1.6,31.8)	14	5.0 (1.6,23.2)	10	2.3 (1.4,6.3)	48	2.0 (0.2,12.3)	44	3.7 (0.2,35.2)
Enrichment - dust/waste bunker	4	96.3 (2.5,359.0)	20	6.3 (1.3,40.0)	20	3.7 (1.2,11.9)	20	5.0 (0.6,19.0)	12	4.7 (1.2,29.5)
Final product (packaging)	10	22.8 (3.3,93.6)	40	10.9 (0.7,125.0)	50	5.7 (1.2,68.8)	64	2.9 (0.4,12.5)	63	8.0 (0.2,262.8)
Other ^c	4	4.8 (1.4,24.5)	22	3.8 (1.3,13.9)	10	1.9 (0.8,3.1)	15	2.6 (1.2,25.4)	12	3.2 (1.0,20.9)

Factory and Unit	Number of spots ^a and Arithmetic mean (range) of monthly-averaged dust concentrations							
	1951-1955, 1959	1960-1969	1970-1979	1980-1989	1990-2001			
<i>Factory 6 total</i>	83	7.6 (0.2,92.8)	770	4.5 (0.1,262.2)	649	4.1 (0.1,196.8)	981	5.0 (0.0,210.7)
Crushing and sorting - main	31	8.1 (1.1,64.8)	229	4.8 (1.1,262.2)	193	3.5 (0.5,196.8)	294	5.3 (0.2,210.7)
Crushing and sorting - drying and boiler	1	3.0 (1.5,5.8)	10	2.9 (1.5,11.4)	12	2.0 (0.8,11.4)	12	1.9 (0.6,6.0)
Crushing and sorting - dust chamber/bag house filter							9	3.0 (1.0,8.0)
Enrichment - main	44	6.4 (0.7,30.6)	412	4.4 (0.9,66.5)	307	4.9 (0.3,47.7)	472	5.5 (0.5,96.7)
Enrichment - dust chamber/bag house filter	1	0.3 (0.2,0.5)	36	0.3 (0.1,0.9)	40	0.1 (0.1,0.6)	48	0.2 (0.0,1.5)
Enrichment - dust/waste bunker	2	36.0 (3.3,92.8)	35	10.6 (1.7,89.5)	30	8.9 (1.1,36.0)	36	9.1 (2.1,26.6)
Final product (packaging)	4	2.7 (1.0,5.0)	21	2.4 (1.0,22.0)	19	2.5 (0.8,10.4)	59	2.7 (0.6,15.9)
Mosaic tile			5	3.5 (1.5,7.3)	10	6.5 (1.3,16.9)	12	4.2 (1.3,9.9)
Other ^c			22	3.2 (1.8,14.2)	38	2.3 (0.8,37.2)	39	2.6 (0.1,41.6)

a. Number of distinct measurement spots in a year, sum over unit and period

b. These unit names only existed in the earliest years and combined, cover the functions of the various crushing and sorting and enrichment units

c. Other includes measurements taken in areas of maintenance, engineering, laboratory, and quality control.

Supplementary Table 6: Number of spots and **Geometric** means and range (minimum and maximum) of the monthly-averaged dust concentrations taken by the Mine Rescue in the Uralasbest mine by calendar year period: 1964-2001

Unit	Number of spots ^a and Geometric mean (range) of monthly-averaged dust concentrations							
	1964-1969		1970-1979		1980-1989		1990-2001	
<i>Total</i>	59	4.0 (0.1, 185.5)	120	3.3 (0.2, 91.3)	126	2.7 (0.6, 57.7)	162	2.7 (0.8, 90.9)
Mining - borehole drilling	8	19.3 (0.5, 185.5)	20	14.1 (2.6, 91.3)	20	7.0 (1.5, 57.7)	23	12.7 (1.7, 90.9)
Mining - excavators	12	2.5 (0.1, 29.5)	20	2.0 (0.2, 7.0)	20	2.0 (0.9, 5.2)	24	2.0 (1.1, 3.8)
Mining - dump transport	6	2.6 (0.1, 30.6)	20	3.4 (0.5, 17.9)	20	2.3 (0.7, 10.5)	24	2.3 (1.0, 10.4)
Drilling - drilling station	10	3.3 (0.3, 26.4)	20	2.1 (0.7, 6.7)	20	2.2 (0.8, 10.4)	24	2.0 (0.9, 8.7)
Mine dump - excavators	12	9.2 (0.5, 92.1)	20	5.0 (1.4, 43.2)	19	3.0 (1.0, 10.7)	21	2.6 (0.8, 10.8)
Mine dump - background					3	3.9 (1.7, 14.4)	18	3.9 (0.8, 31.5)
Other ^b	11	1.9 (0.1, 24.2)	20	2.3 (0.3, 12.1)	24	2.3 (0.6, 10.9)	28	2.0 (0.8, 7.4)

a. Number of distinct measurement spots in a year, sum over unit and period

b. Other includes measurements taken in areas of maintenance, engineering, laboratory and quality control and rail transport activity.

Supplementary Table 6A: Number of spots and **Arithmetic** means and range (minimum and maximum) of the monthly-averaged dust concentrations taken by the Mine Rescue in the Uralasbest mine by calendar year period: 1964-2001

Unit	Number of spots ^a and Arithmetic mean (range) of monthly-averaged dust concentrations							
	1964-1969		1970-1979		1980-1989		1990-2001	
<i>Total</i>	59	10.4 (0.1, 185.5)	120	5.9 (0.2, 91.3)	126	3.7 (0.6, 57.7)	162	4.4 (0.8, 90.9)
Mining - borehole drilling	8	35.8 (0.5, 185.5)	20	21.9 (2.6, 91.3)	20	10.1 (1.5, 57.7)	23	20.6 (1.7, 90.9)
Mining - excavators	12	4.2 (0.1, 29.5)	20	2.3 (0.2, 7.0)	20	2.1 (0.9, 5.2)	24	2.1 (1.1, 3.8)
Mining - dump transport	6	5.3 (0.1, 30.6)	20	4.1 (0.5, 17.9)	20	2.6 (0.7, 10.5)	24	2.6 (1.0, 10.4)
Drilling - drilling station	10	5.9 (0.3, 26.4)	20	2.3 (0.7, 6.7)	20	2.5 (0.8, 10.4)	24	2.2 (0.9, 8.7)
Mine dump - excavators	12	16.7 (0.5, 92.1)	20	6.9 (1.4, 43.3)	19	3.5 (1.0, 10.7)	21	3.1 (0.8, 10.8)
Mine dump - background					3	6.2 (1.7, 14.4)	18	6.6 (0.8, 31.6)
Other ^b	11	3.5 (0.1, 24.3)	20	3.0 (0.3, 12.1)	24	2.7 (0.6, 11.0)	28	2.2 (0.8, 7.4)

a. Number of distinct measurement spots in a year, sum over unit and period

b. Other includes measurements taken in areas of maintenance, engineering, laboratory and quality control and rail transport activity.