

Table S1. Mean frequencies ( $\pm$ SD) of micronucleated binucleated cells (MNBC), micronuclei in reticulocytes (MN RET), tail intensity (comet assay) and urinary levels of malondialdehyde (MDA) and 8-hydroxydeoxyguanosine (8-OHdG) in exposed and control groups, after stratification according to socio-demographic, lifestyle and occupational activity characteristics.

Independent variables	Exposed group					Total control group				
	MNBC (‰)	MN RET (‰)	Tail intensity (%)	MDA (( $\mu$ g/))	8-OHdG (( $\mu$ g/L))	MNBC (‰)	MN RET (‰)	Tail intensity (%)	MDA (( $\mu$ g/L))	8-OHdG (( $\mu$ g/L))
<i>Country</i>										
Belgium	11.3 $\pm$ 6.0	2.2 $\pm$ 1.1	7.0 $\pm$ 1.1	65.1 $\pm$ 36.5	3.4 $\pm$ 1.6	14.1 $\pm$ 7.1	2.9 $\pm$ 1.8	7.6 $\pm$ 0.9	55.4 $\pm$ 32.9	3.9 $\pm$ 2.2
Finland	9.4 $\pm$ 4.9	2.4 $\pm$ 1.6	8.2 $\pm$ 1.7	54.8 $\pm$ 34.1	2.8 $\pm$ 1.9	10.6 $\pm$ 5.6	2.1 $\pm$ 0.7		51.4 $\pm$ 26.3	2.4 $\pm$ 1.2
Netherlands	15.8 $\pm$ 8.9			76.7 $\pm$ 37.4	4.1 $\pm$ 2.7	17.0 $\pm$ 6.4			80.1 $\pm$ 82.3	5.2 $\pm$ 2.1
Poland	6.1 $\pm$ 3.7	4.1 $\pm$ 2.4	6.3 $\pm$ 1.1	85.3 $\pm$ 46.8	5.2 $\pm$ 4.6	9.1 $\pm$ 6.0	4.3 $\pm$ 3.1	7.5 $\pm$ 1.2	90.5 $\pm$ 98.1	4.8 $\pm$ 2.3
Portugal	6.6 $\pm$ 2.4	1.9 $\pm$ 1.0	5.5 $\pm$ 1.8			4.1 $\pm$ 1.7	1.7 $\pm$ 0.5	1.7 $\pm$ 1.2		
France				103.9 $\pm$ 82.1	4.4 $\pm$ 2.3				99.4 $\pm$ 79.1	4.9 $\pm$ 3.2
<i>p</i>	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.009	< 0.001	0.192	0.003
<i>Gender</i>										
Female	12.0 $\pm$ 6.8	3.3 $\pm$ 2.2	5.3 $\pm$ 1.1	84.8 $\pm$ 67.9	3.5 $\pm$ 0.6	12.2 $\pm$ 6.5	3.3 $\pm$ 2.8	4.1 $\pm$ 3.5	57.1 $\pm$ 58.8	4.0 $\pm$ 2.1
Male	9.2 $\pm$ 6.1	2.7 $\pm$ 1.9	6.5 $\pm$ 1.9	76.4 $\pm$ 52.9	4.0 $\pm$ 2.3	8.9 $\pm$ 6.5	2.4 $\pm$ 1.7	3.1 $\pm$ 2.8	81.6 $\pm$ 73.1	4.1 $\pm$ 2.6
<i>p</i>	0.452	0.736	0.171	0.800	0.510	0.010	0.041	0.196	0.001	0.257
<i>Age</i>										
20-49	8.9 $\pm$ 6.2	2.6 $\pm$ 1.7	6.3 $\pm$ 2.0	78.7 $\pm$ 57.7	4.0 $\pm$ 2.4	8.9 $\pm$ 6.2	2.6 $\pm$ 2.1	3.5 $\pm$ 3.0	75.2 $\pm$ 74.7	4.3 $\pm$ 2.6
50-68	10.1 $\pm$ 5.7	3.1 $\pm$ 2.3	6.8 $\pm$ 1.8	70.9 $\pm$ 37.8	4.0 $\pm$ 1.9	12.5 $\pm$ 7.4	2.5 $\pm$ 1.6	2.3 $\pm$ 2.6	71.5 $\pm$ 54.6	3.3 $\pm$ 1.7
<i>p</i>	0.099	0.649	0.343	0.928	0.505	0.078	0.413	0.707	0.437	0.428

<i>Smoking status</i>										
Smoker	9.4 ± 7.0	2.8 ± 1.4	5.8 ± 1.8	83.8 ± 60.2	4.2 ± 2.6	7.4 ± 6.7	2.1 ± 1.0	4.2 ± 3.0	92.4 ± 84.0	5.1 ± 2.5
Former smoker	8.9 ± 5.2	2.7 ± 2.1	6.5 ± 1.3	80.4 ± 63.2	3.9 ± 2.3	11.0 ± 6.8	2.5 ± 0.9	2.5 ± 4.0	81.9 ± 69.2	3.7 ± 2.7
Non smoker	9.4 ± 5.8	2.7 ± 2.1	6.8 ± 2.2	67.8 ± 35.4	3.9 ± 2.0	10.0 ± 6.5	2.7 ± 2.3	3.1 ± 2.7	69.7 ± 68.1	4.0 ± 2.4
<i>p</i>	0.519	0.435	0.192	0.179	0.706	0.252	0.646	0.660	0.406	0.156
<i>Alcohol consumption</i>										
Low	8.7 ± 5.6	2.5 ± 1.5	6.3 ± 1.9	72.1 ± 38.9	3.6 ± 2.0	8.0 ± 5.7	2.3 ± 1.5	3.4 ± 3.3	58.6 ± 68.3	3.0 ± 1.9
Medium	8.23 ± 6.6	3.5 ± 2.2	6.7 ± 2.0	82.4 ± 53.0	4.4 ± 2.3	7.9 ± 5.4	3.0 ± 2.5	3.6 ± 3.0	79.5 ± 79.8	4.5 ± 2.3
High	10.6 ± 5.6	1.9 ± 1.0	6.5 ± 1.9	72.1 ± 56.5	3.8 ± 2.2	12.5 ± 7.4	2.1 ± 1.2	2.3 ± 2.6	74.7 ± 62.0	4.0 ± 2.6
<i>p</i>	0.002	<0.001	0.733	0.272	0.382	0.007	0.295	0.174	0.307	0.516
<i>U-Cr end-shift (µg/g creatinine)</i>										
1 <sup>st</sup> tertile	7.0 ± 3.5	2.8 ± 2.0	6.1 ± 2.3	94.6 ± 71.5	4.3 ± 2.5	8.8 ± 6.2	2.5 ± 2.0	3.3 ± 3.0	75.1 ± 73.6	4.1 ± 2.5
2 <sup>nd</sup> tertile	7.6 ± 4.2	3.6 ± 2.5	6.3 ± 1.8	81.3 ± 52.2	4.3 ± 2.4	11.7 ± 6.9	2.8 ± 1.9	2.6 ± 1.7	72.8 ± 62.9	4.1 ± 2.3
3 <sup>rd</sup> tertile	11.0 ± 7.1	2.3 ± 1.3	6.9 ± 1.6	67.7 ± 44.0	3.7 ± 2.1	16.8 ± 7.5			69.4 ± 58.4	3.2 ± 1.8
<i>p</i>	<0.001	0.020	0.071	0.026	0.354	0.087	0.249	0.589	0.969	0.796
<i>Activity/Group</i>										
Bath plating workers	12.6 ± 8.0	1.9 ± 1.1	7.4 ± 1.6	72.67 ± 39.6	4.1 ± 2.6					
Chromate paint applicators	9.7 ± 6.4	2.0 ± 1.1	5.2 ± 1.3	70.6 ± 44.0	2.7 ± 0.9					

Welders	7.4 ± 4.8	3.4 ± 2.3	7.6 ± 1.9	78.6 ± 54.8	3.7 ± 2.0					
Machining workers	8.0 ± 3.1	2.3 ± 1.3	5.0 ± 2.0	88.8 ± 92.7	4.2 ± 2.7					
Other activities	9.6 ± 4.8	2.0 ± 0.7	6.1 ± 1.0	59.7 ± 30.5	4.1 ± 3.5					
Within company control						12.2 ± 7.6	3.1 ± 2.7	6.9 ± 2.4	74.1 ± 74.2	4.2 ± 2.6
Outwith company control						7.3 ± 5.5	1.9 ± 0.7	1.7 ± 1.2	51.0 ± 26.1	2.3 ± 1.1
<i>p</i>	0.001	< 0.001	< 0.001	0.745	0.608	0.001	0.041	< 0.001	0.368	0.013

Table S2. Mean frequencies ( $\pm$ SD) of micronucleated binucleated cells (MNBC), micronuclei in reticulocytes (MN RET), tail intensity (comet assay) and urinary levels of malondialdehyde (MDA) and 8-hydroxydeoxyguanosine (8-OHdG) in control subgroups, after stratification according to socio-demographic, lifestyle and occupational activity characteristics.

Independent variables	Within company control subgroup					Outwith company control subgroup				
	MNBC (‰)	MN RET (‰)	Tail intensity (%)	MDA ( $\mu$ g/L)	8-OHdG ( $\mu$ g/L)	MNBC (‰)	MN RET (‰)	Tail intensity (%)	MDA ( $\mu$ g/L)	8-OHdG ( $\mu$ g/L)
<i>Country</i>										
Belgium	14.1 $\pm$ 7.1	2.9 $\pm$ 1.8		55.4 $\pm$ 32.9	3.9 $\pm$ 2.2					
Finland	9.1 $\pm$ 4.8	1.8 $\pm$ 0.5	7.6 $\pm$ 0.9	52.2 $\pm$ 28.9	2.6 $\pm$ 1.5	11.1 $\pm$ 6.0	2.2 $\pm$ 0.8		51.0 $\pm$ 26.1	2.3 $\pm$ 1.1
Netherlands	17.0 $\pm$ 6.4		7.5 $\pm$ 1.2	80.1 $\pm$ 82.3	5.2 $\pm$ 2.1					
Poland	9.1 $\pm$ 6.0	4.3 $\pm$ 3.1		90.5 $\pm$ 98.1	4.8 $\pm$ 2.3					
Portugal						4.1 $\pm$ 1.8	1.7 $\pm$ 0.5	1.7 $\pm$ 1.2		
France				99.4 $\pm$ 79.1	4.9 $\pm$ 3.2					
<i>p</i>	0.001	0.175	0.144	0.293	0.049	< 0.001	0.040			
<i>Gender</i>										
Female	12.5 $\pm$ 6.6	3.7 $\pm$ 3.0	7.1 $\pm$ 1.0	57.7 $\pm$ 60.2	4.1 $\pm$ 2.2	10.7 $\pm$ 7.6	1.9 $\pm$ 0.8	1.1 $\pm$ 0.3		
Male	11.1 $\pm$ 7.1	3.2 $\pm$ 2.5	6.5 $\pm$ 3.1	92.1 $\pm$ 81.1	4.7 $\pm$ 2.6	7.1 $\pm$ 5.3	1.9 $\pm$ 0.7	1.8 $\pm$ 1.3	51.5 $\pm$ 27.0	2.3 $\pm$ 1.1
<i>p</i>	0.100	0.174	0.216	<0.001	0.067	0.408	0.687	0.219		
<i>Age</i>										
20-49	10.4 $\pm$ 6.4	3.3 $\pm$ 2.7	6.5 $\pm$ 2.9	82.0 $\pm$ 80.9	4.8 $\pm$ 2.6	7.0 $\pm$ 5.5	1.9 $\pm$ 0.6	1.9 $\pm$ 1.4	46.8 $\pm$ 25.6	2.2 $\pm$ 1.1
50-68	15.8 $\pm$ 7.2	3.7 $\pm$ 2.1	A	73.8 $\pm$ 60.0	3.5 $\pm$ 1.8	8.7 $\pm$ 5.9	1.9 $\pm$ 0.9	1.2 $\pm$ 0.5	62.5 $\pm$ 27.3	2.7 $\pm$ 1.2
<i>p</i>	0.093	0.561	0.897	0.623	0.219	0.462	0.596	0.517	0.240	0.433

<i>Smoking status</i>										
Smoker	12.7 ± 7.0	2.8 ± 1.2	7.7 ± 0.2	100.0 ± 94.9	5.7 ± 2.3	3.0 ± 1.0	1.5 ± 0.3	2.4 ± 1.5	65.9 ± 24.7	3.0 ± 2.3
Former smoker	11.9 ± 8.9	1.9 ± 0.6	4.5 ± 5.8	87.4 ± 82.9	4.2 ± 3.2	10.2 ± 5.4	2.7 ± 0.9	0.6 ± 0.3	70.9 ± 35.7	2.5 ± 0.9
Non smoker	11.4 ± 6.7	3.7 ± 2.9	7.2 ± 1.1	75.6 ± 72.7	4.3 ± 2.4	7.9 ± 5.8	1.8 ± 0.5	1.7 ± 1.1	38.9 ± 14.7	2.1 ± 1.0
<i>p</i>	0.752	0.595	0.749	0.486	0.148	0.006	0.030	0.054	0.103	0.710
<i>Alcohol consumption</i>										
Low	10.0 ± 6.4	2.9 ± 2.0	7.4 ± 1.0	60.5 ± 71.8	3.2 ± 1.9	5.8 ± 4.2	1.7 ± 0.2	2.1 ± 1.9		
Medium	9.5 ± 5.9	3.9 ± 3.0		83.2 ± 84.4	4.8 ± 2.3	5.4 ± 3.4	2.0 ± 0.7	1.7 ± 1.2	55.4 ± 34.8	2.3 ± 0.8
High	15.0 ± 7.3	2.5 ± 1.8	3.9 ± 5.0	84.0 ± 69.4	4.6 ± 2.8	9.9 ± 6.7	1.9 ± 0.8	1.5 ± 0.5	50.3 ± 25.1	2.4 ± 1.2
<i>p</i>	0.040	0.374	0.476	0.238	0.435	0.166	0.586	0.953	0.882	0.651
<i>U-Cr end-shift</i> (µg/g creatinine)										
1 <sup>st</sup> tertile	10.3 ± 6.7	3.4 ± 2.8	6.6 ± 2.7	84.3 ± 83.6	4.7 ± 2.6	7.6 ± 5.7	1.9 ± 0.7	1.6 ± 1.2	51.0 ± 26.1	2.3 ± 1.1
2 <sup>nd</sup> tertile	12.3 ± 6.7	3.1 ± 2.1		72.8 ± 62.9	4.1 ± 2.3	4.3 ± 1.8	1.6 ± 0.1	2.6 ± 1.7		
3 <sup>rd</sup> tertile	16.8 ± 7.5			69.4 ± 58.4	3.2 ± 1.8					
<i>p</i>	0.219	0.391	0.245	0.798	0.578	0.436	0.670	0.325		

Table S3. Level of oxidative stress biomarkers parameters (mean  $\pm$  SD) in groups of workers exposed to Cr(VI) and controls.

	Pre-shift			Post-shift		
	n	MDA ( $\mu\text{g/L}$ )	8-OHdG ( $\mu\text{g/L}$ )	n	MDA ( $\mu\text{g/L}$ )	8-OHdG ( $\mu\text{g/L}$ )
<b>Exposed Group</b>	<b>214</b>	<b>87.5 <math>\pm</math> 78.0*<sup>£¥</sup></b>	<b>4.77 <math>\pm</math> 2.70<sup>£¥</sup></b>	<b>213</b>	<b>76.5 <math>\pm</math> 54.9</b>	<b>4.05 <math>\pm</math> 2.64</b>
Bath plating workers	57	81.2 $\pm$ 45.2* <sup>£¥</sup>	4.92 $\pm$ 2.43 <sup>£¥</sup>	57	72.7 $\pm$ 39.6	4.12 $\pm$ 2.63
Chromate paint applicators	8	82.4 $\pm$ 39.0 <sup>£</sup>	4.12 $\pm$ 1.95 <sup>£</sup>	8	70.6 $\pm$ 44.0	2.71 $\pm$ 0.92*
Welders	110	87.9 $\pm$ 96.0 <sup>£¥</sup>	5.01 $\pm$ 3.10 <sup>£¥</sup>	110	78.7 $\pm$ 55.0	4.17 $\pm$ 2.71
Machining workers	24	97.2 $\pm$ 64.1* <sup>£¥</sup>	4.09 $\pm$ 1.99 <sup>£</sup>	23	88.8 $\pm$ 92.7	3.72 $\pm$ 2.05
Other activities	15	97.6 $\pm$ 74.6 <sup>£</sup>	3.82 $\pm$ 1.55 <sup>£</sup>	15	59.7 $\pm$ 30.5	4.11 $\pm$ 3.49
<b>Total control Group</b>	<b>84</b>	<b>71.3 <math>\pm</math> 75.5</b>	<b>3.89 <math>\pm</math> 2.53</b>	<b>-</b>	<b>-</b>	<b>-</b>
Within company control	69	75.8 $\pm$ 81.9	4.23 $\pm$ 2.62 <sup>£</sup>	-	-	-
Outwith company control	15	51.0 $\pm$ 26.1	2.32 $\pm$ 1.09*	-	-	-