

Supplemental table S1. Outcome definitions and ICD-8 and -9 codes, reanalysis of the IARC international cohort of reinforced plastics workers exposed to styrene, 1945-1991.

Cancer site or tissue	ICD-8/9 Code
Non-Hodgkin lymphoma	200,202,203,204.1
<i>Lymphosarcoma & reticulosarcoma</i>	200
<i>Other malignant neoplasms of lymphoid & histiocytic tissue</i>	202
<i>Chronic lymphoid/lymphocytic leukaemia</i>	204.1
<i>Acute lymphoid/lymphocytic leukaemia</i>	200.0*
<i>Multiple myeloma</i>	203
Myeloid leukaemia	205
<i>Acute myeloid leukaemia</i>	205.0
<i>Chronic myeloid leukaemia</i>	205.1
Cancer of the lung and bronchus	162
Cancer of the oesophagus	150
Cancer of the pancreas	157
Cancer of the urinary bladder	188
Cancer of the kidney	189
Cancer of the prostate	185

*No deaths from this cause in the cohort

Supplemental table S2. All-cause and all-cancer mortality and exposure to styrene, IARC international cohort of reinforced plastics workers exposed to styrene, 1945-1991.

Exposure	All causes (N=2351)			All cancer (N=655)		
	N	RR*	95% CI	N	RR*	95% CI
Unexposed jobs	428	1.00		119	1.00	
Exposed jobs	1953	1.01	0.89-1.14	488	1.01	0.81-1.17
Exposure duration						
< 2 y	1666	1.00		393	1.00	
2-<5 y	305	0.94	0.83-1.06	98	1.21	0.97-1.51
5-<10 y	224	0.95	0.82-1.09	62	0.93	0.71-1.22
10-<20 y	141	0.91	0.76-1.08	51	1.14	0.84-1.54
≥20 y	14	0.64	0.38-1.09	5	0.84	0.34-2.05
Cumulative styrene exposure (100 ppm*y), 0 y lag	2239	1.00	0.99-1.01	578	1.00	0.98-1.02
Mean styrene exposure (100 ppm), 0 y lag	2239	1.20	1.13-1.28	578	1.12	0.98-1.27

*Mortality rate ratio adjusted for age, calendar decade, sex and country.

Supplemental table S3. Cancer mortality and alternative estimates of exposure to styrene, assessment of uncertainty, IARC international cohort of reinforced plastics workers exposed to styrene, 1945-1991. Exposure models: 1) styrene concentrations before 1970 assumed equal to 1970 levels in all countries except Denmark (see text for explanation); 2) workers hired before 1970 excluded; 3) Denmark excluded.

NHL		Lung		Oesophagus		Pancreas		Prostate	
RR ^a	95% CI ^a	RR	95% CI	RR	95% CI	RR	95% CI	RR	95% CI
Styrene concentrations assumed constant before 1970									
Cumulative styrene exposure (ppm-y), 0 y lag									
1.02	0.93-1.12	1.02	0.99-1.06	1.07	0.95-1.19	1.04	0.97-1.12	1.03	0.96-1.11
Mean styrene exposure (ppm), 0 y lag									
2.89	1.54-5.40	1.01	0.79-1.30	2.54	1.07-6.02	2.21	1.31-3.72	1.63	0.98-2.70
Workers hired before 1970 excluded									
Cumulative styrene exposure (ppm-y), 0 y lag									
0.72	0.43-1.23	1.11	1.02-1.20	1.23	0.98-1.54	1.12	0.93-1.35	1.02	0.80-1.29
Mean styrene exposure (ppm), 0 y lag									
1.85	0.41-8.29	1.26	0.76-2.07	7.30	1.45-36.65	0.88	0.24-3.14	1.70	0.40-7.17
Denmark excluded									
Cumulative styrene exposure (ppm-y), 0 y lag									
1.05	0.98-1.14	1.02	0.99-1.05	1.07	0.98-1.54	1.03	0.95-1.11	0.92	0.78-1.09
Mean styrene exposure (ppm), 0 y lag									
1.34	0.57-3.13	0.84	0.64-1.10	3.26	1.25-8.52	1.21	0.60-2.43	1.42	0.72-2.78

a. RR, rate ratio per 100 ppm-y or 100 ppm; CI, confidence interval. RRs adjusted as follows: NHL, age, calendar decade, sex; lung cancer, age, sex, country; oesophageal cancer, pancreatic cancer, prostate cancer: age.

Supplemental figure S1. Non-parametrically smoothed exposure-response of log lung cancer RR (vertical axis) and cumulative styrene exposure lagged 10 years (horizontal axis) adjusted for age, sex, country. Exposure df 1.2, AIC 3023.

