

## Supplemental Files

**Lung Cancer Risk in Painters: Results from the SYNERGY pooled case-control study consortium**

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Supplemental Table 1. Categorization for painter by industry (e.g. spray, construction, manufacture, repair) classified by ISCO and ISIC codes, grouped on chemical composition of paint, and type of application

PAINTER INDUSTRY	ISCO		ISIC		Chemical Exposures *, **	
Construction	93100	Painters, construction			1,2,4-trimethylbenzene, 2,2,4-Trimethylpentane-1,3-diol monoisobutyrate, Ammonia, <b>Asbestos</b> , Benzene, Butyl acrylate, <b>Cadmium</b> , Calcium, <b>Chromium</b> , Cobalt, <b>Crystalline silica</b> , Diethylene glycol butyl ether, Diethylene glycol methyl ether, Dipropylene glycol methyl ether, Ethylene glycol butyl ether, Ethylene glycol phenyl ether, Formaldehyde, Iron, Isobutanol, Lead, Limonene, n-Butano, n-Decane, n-Hexane, n-Nonane, n-Undecane, Propylene glycol, Solvent naphtha, Titanium, Toluene, Trichloroethylene, Triethylamine, White spirits, Xylene, Zinc	
	93120	Building painter				
	93920	Brush painter				
	93XXX		9100	Public administration & defense		
	93XXX		5000	Construction		
Manufacture*	93XXX		3XXX	All manufacture (excluding ISIC 3320 – furniture & cabinet manufacture)	1-methoxypropanol- 2-ol, 2-Butoxyethanol, 2-Ethoxyethanol, 2-Ethoxyethyl acetate, 2-methoxypropyl-1- acetate, Carbon black, C-9 Aromatic hydrocarbon, Dichloromethane, Ethanol, Ethyl acetate, Ethylbenzene, Isobutanol, Isopropanol, Isopropyl alcohol, Methyl ethyl ketone, Methyl isoamyl ketone, Methyl isobutyl ketone, Methylacetate, N,N-dimethylformamide, n-Butanol, n-Butyl acetate, n-Butyl acetone, n-Hexane, Stoddard solvent, Toluene, Trimethylbenzene (all isomers), VM&P Naphta, White spirits, Xylene	
				3843		Motor vehicle manufacture
				3845		Aircraft manufacture
Spray painters in manufacture	93930	Spray painter	3XXX	All manufacture (excluding ISIC 3320 – furniture & cabinet manufacture)	1,3,5-Triglycidyl isocyanurate, Acetone, Benzene, Bisphenol A, glycidyl ethers, butanone, Butyl acetate, Cellosolve acetate, <b>Chromium</b> , Chromium oxide, Cyclohexanone, Dichloromethane, Diethylene triamine, Epichlorohydrin, Ethyl acetate, Ethylbenzene, Isobutyl acetate, Isobutyl ketone, Lead, Methyl ethyl ketone, Methyl isobutyl ketone, Naphtha, n-butyl acetate, <b>Polycyclic Aromatic Hydrocarbons</b> , Styrene, Toluene, Xylene, Zinc oxide	
				3843		Motor vehicle manufacture
				3845		Aircraft manufacture
Repair	93XXX		3841	Ship building and repair	2-Propylacetate, Acetone, Benzene, Butylacetate, Dichloromethane, Ethyl acetate, Ethylbenzene, Hexamethylene diisocyanate (HDI), Isobutanol, Isopropanol, n-Butylacetate, n-Hexane, Toluene, Trimethylbenzene, Xylene	
				9513		Motor vehicle repair
Other	93XXX	Painters who were not included in the industries (as indicated by the combination of ISCO and ISIC codes) listed above				

\* Bolded chemicals indicate IARC Group 1 lung carcinogens with sufficient evidence in humans that these chemicals cause lung cancer.

\*\* Source: Tables 1.12-1.16 of the IARC Monograph volume 98

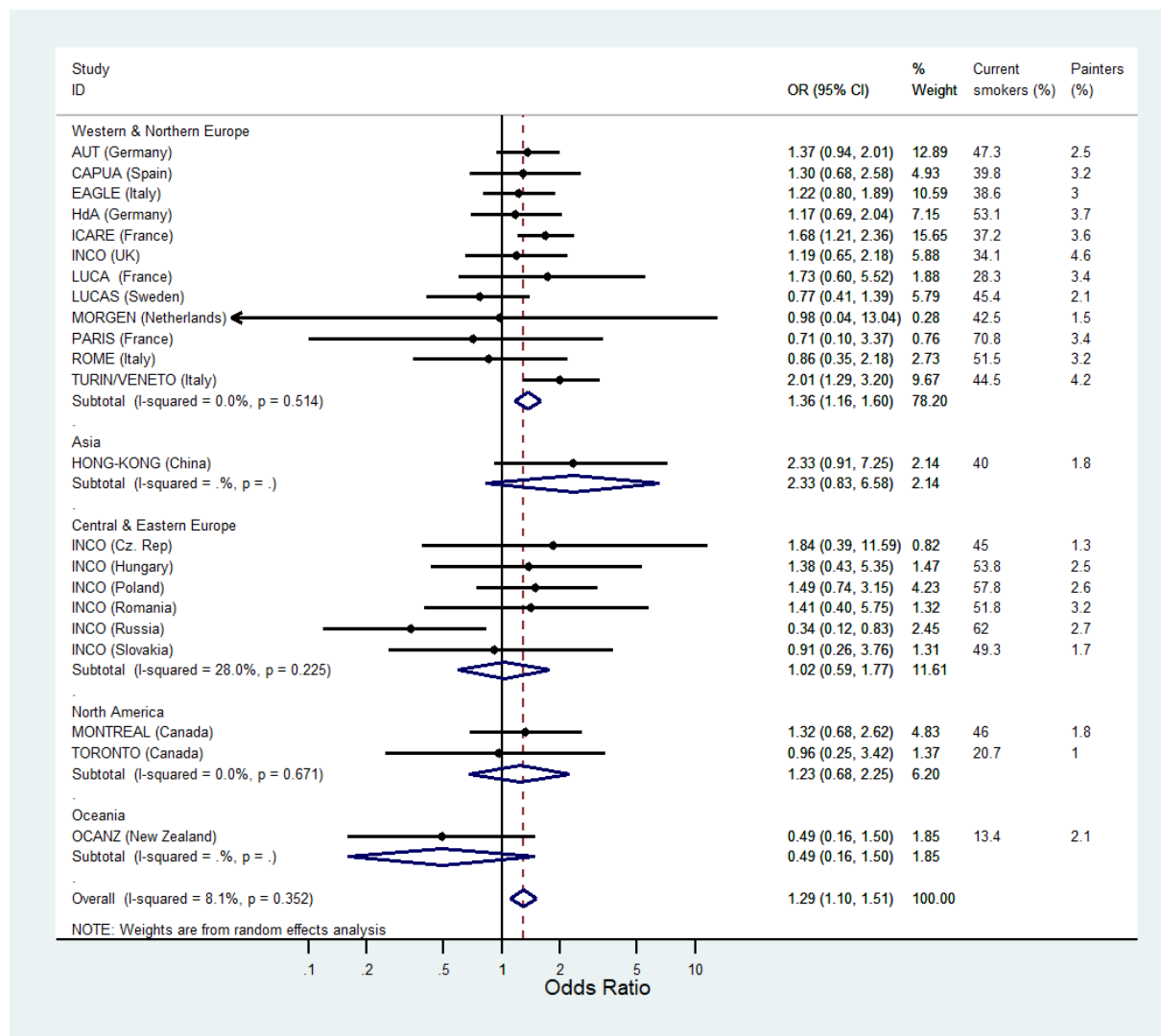
Supplemental Table 2. Occupations and industries known or suspected to present an excess risk of lung cancer*	
Industry	Occupation/Process
<b>LIST A (excluding painters)</b>	
Agriculture	Users of arsenic-based insecticides in vineyards
Mining and quarrying	Extraction of arsenic Extraction of uranium Extraction of iron ore Extraction of asbestos Extraction and grinding of talc. Extraction of granite
Chemical products (basic industrial chemicals)	Production of chromate pigment Manufacture of cadmium-based pigment Production of chloromethylated organic compounds and intermediates, of ion exchange resins, production of CMME (presence of BCME / CMME) Production of chlorophenols and chlorophenoxy acids Production of polyvinyl chloride
Pesticide and herbicide production	Arsenical insecticide production and packaging
Asbestos processing	Production of insulating material (products based on asbestos cement, pipes, cloths, textiles, dresses, masks)
Granite processing	Cutting, grinding, polishing, etc. of granite slabs
Ceramic industry and production of refractory bricks	Pottery workers
Metals (iron and steel basic Industries)	Iron and steel founding
Metals (non-ferrous, basic industries): smelting, alloying, refining, rolling, drawing, casting	Copper smelting Zinc smelters Production of cadmium alloys Production of aluminum Refining of nickel Production of chromium Refining and production of cadmium Refining and grinding of beryllium Production of products containing beryllium
Mechanical industry	Pickling operations Chrome plating Electroplating (cadmium) Brazing
Electromechanical industry	Manufacture of nickel-cadmium-based batteries
Shipbuilding, motor vehicle, railroad equipment manufacturing	Shipyards and dockyard, motor vehicle, and railroad manufacture workers
Gas	Coke plant workers and gas production workers
Construction	Insulators and pipe coverers, roofers, and asphalt workers
<b>LIST B</b>	
Agriculture	Insecticide sprayers (workers in orchards and horticulturists)
Mining and quarrying	Zinc-lead mining, metal mining
Food industry	Butchers and meat workers
Leather	Tanners and processors
Wood and wood products	Carpenters, Joiners
Printing	Rotogravure workers, printing pressmen, machine-room workers, binders, and other jobs
Chemical production	Acrylonitrile, vinylidene chloride, polychloroprene,

	dimethylsulfate, epichlorohydrin, benzoyl chloride, carbon black, alphachlorotoluene, 1,2 dibromo 3 chloropropane
Production of herbicides and pesticides	Production and packaging of herbicides based on 1,2 dibromo 3 chloropropane
Rubber	Various occupations in rubber manufacture, including the use of carbon black
Ceramic, refractory brick, and glass	Glass workers (glass processing, containers and moulded glass items)
Metals	Lead smelting, iron and steel founding
Motor vehicle manufacturing and repair	Mechanics, welders etc. (forging press operator. machine-tool operators, motor-vehicle mechanics)
Transport	Railroad workers Bus and truck drivers
Building	Operators of excavating machines (heavy equipment operators)
Commercial	Filling station attendants
Other	Laundry and dry cleaners

\* based on Ahrens W, Merletti F. A standard tool for the analysis of occupational lung cancer in epidemiologic studies. *Int J Occup Environ Health* 1998;4(4):236-40 and Mirabelli D, Chiusolo M, Calisti R, et al. [Database of occupations and industrial activities that involve the risk of pulmonary tumors]. *Epidemiologia e prevenzione* 2001;25(4-5):215-21 as used in Lung Cancer Risk in Painters: Results from the SYNERGY pooled case-control study consortium.

Supplemental Table 3. Risk of lung cancer in painters; sensitivity analyses by characteristics of the studies included in SYNERGY

Study characteristics	OR (95% CI)	I <sup>2</sup>	n studies
All studies	1.26 (1.09-1.44)	0%	22
Control Source			
Hospital	0.99 (0.69-1.42)	6%	9
Population	1.32 (1.13-1.55)	0%	11
Hospital+Population	1.19 (0.64-2.21)	0%	2
Region			
Western & Northern Europe	1.31 (1.12-1.52)	0%	12
Central & Eastern Europe	0.99 (0.59-1.66)	26.6%	6
North America	1.11 (0.62-1.98)	0%	2
Asia	2.19 (0.81-5.92)	NA	1
Oceania	0.77 (0.29-2.04)	NA	1
Sample Size			
≤1500	1.00 (0.74-1.35)	0%	12
>1500	1.33 (1.14-1.56)	0%	10
Year data collection ended			
<1995	1.35 (1.05-1.74)	14.7%	6
>1995	1.19 (1.00-1.42)	0%	16
Exclude studies with the largest weights			
Drop AUT, ICARE, TURIN	1.08 (0.90-1.30)	0%	19
Control participation			
>50%	1.23 (1.06-1.44)	0%	19
>75%	1.24 (0.99-1.55)	18.7%	14
>90%	1.02 (0.63-1.65)	37.3%	6
NA, not available			



Supplemental Figure 1. Risk of lung cancer in painters; meta-analysis of the case-control studies included in the SYNERGY pooled analysis, stratified by geographic region. ORs displayed are adjusted for age, sex, cigarette pack-years, time since quitting smoking, and ever employment in list A and B jobs.