

Supplemental Material, Table 1. Cohort and linkage studies assessing lung and respiratory cancer among persons with occupation as a painter, arranged by geographical region and publication date.

Reference, location, time period	Cohort description	Exposure assessment	Organ site (ICD code)	Exposure categories	No. of cases/deaths	RR/SIR/SMR (95% CI)	Adjustment for potential confounders	Comments
Gubéran <i>et al</i> (1989) Switzerland 1971-84 Europe	1916 male painters from the 1970 Geneva census were linked to the Geneva Cancer Registry and followed for cancer incidence during 1971-84	Occupational classifications were obtained from the 1970 census	Lung, bronchus, trachea (ICD8 162)	Painters	40	SIR (95% CI) 1.47 [1.05-2.00]	Age, sex, matrimonial status, calendar year	In IARC volume 98 Reference = Swiss population; Painters showed excess mortality from alcoholism (SMR, 6.25; 90%CI, 2.46–13.14; 5 deaths) and from cirrhosis (SMR, 1.59; 90%CI, 0.96–2.49; 14 deaths), suggesting excess alcohol consumption among painters.
van Loon <i>et al</i> (1997) the Netherlands 1986-90 Europe	58 729 men, aged 55-69 yrs, were enrolled from the general Dutch population and followed for lung cancer incidence from 1986-90 by linkage to national and regional registries	Paint exposure was obtained from job history as part of a self-administered questionnaire and case by case expert assessment	Lung	Paint dust exposure None Any* Low High <i>p</i> value for trend	506 18 4 14	RR (95% CI) 1.00 (ref) [2.41 (1.07-5.44)] 2.29 (0.61-8.63) 2.48 (0.88-6.97) < 0.01	Age, other occupational exposures, smoking habits, dietary intake of vitamin C, B-carotene and retinol	In IARC volume 98 Cumulative probability of exposure = probability x duration of exposure; *calculated using a fixed effects model

OPCS (1958)	Registered deaths of 221,941 men and women aged 20-64 yrs in the broad occupational category of painters and decorators	Occupation at time of death or last occupation from death certificates; Occupations coded according to the Census 1951, Classification of Occupations	Lung, bronchus, trachea, primary cancer (ICD6 162)	Other painters & decorators		SMR (95% CI)	Age, sex	In IARC volume 47 Reference = population of England and Wales
England & Wales				Men & women	912	[1.49 (1.40-1.59)]		
1949-53				Men	909	[1.49 (1.40-1.59)]		
UK				age 20-44 yrs	94	[1.49 (1.21-1.83)]		
				age 45-54 yrs	297	[1.47 (1.31-1.65)]		
				age 55-64 yrs	518	[1.51 (1.38-1.64)]		
				Single women	3	3.00 [0.62-8.77]		
				Sign writers, paint sprayers, aerographers	57	[1.42 (1.08-1.84)]		
				Sign writers	21	[1.62 (1.00-2.47)]		
				Aerographers, paint sprayers	36	[1.33 (0.93-1.85)]		
OPCS (1971)	Registered deaths of men and women aged 15-64 in England and Wales	Last occupation recorded on the death certificate?	Lung, bronchus, trachea, primary and unspecified primary or secondary (ICD7 162, 163)	Painters & decorators		SMR (95% CI)	Age, sex	In IARC volume 47 Reference = population of England and Wales
England & Wales				Age 15-64 yrs men & women	1506	1.43 [1.36-1.51]		
1959-63				men	1502	1.43 [1.36-1.50]		
UK				single women	4	4.00 [1.09-10.24]		
				Aerographers, paint sprayers				
				Men (15-64 yrs)	98	1.62 [1.32-1.97]		
OPCS (1978), no.1	Registered deaths of 273,129 men aged 15-64	Last occupation recorded on the death certificate, as coded by the 1970 Classification of Occupations	Lung, bronchus, trachea (ICD8 162)	Painters & decorators	847	SMR (95% CI) 1.39 [1.30-1.49]	Age, sex	In IARC volume 47 Reference = population of England and Wales;
England & Wales				Northern region	53	1.69 [1.27-2.21]		The occupation unit of 'painters and decorators' was comprised of aerographers, paint sprayers, painters, decorators n.e.c., coach painters
UK				South West region	45	0.91 [0.66-1.22]		
1970-72				Painters, decorators n.e.c.	728	1.22 [1.13-1.31]		

Logan (1982) England & Wales 1851-1971 UK	Mortality of men and women in 1931-71, ages 15-64	Occupation recorded at the time of cancer registration/death and coded using various methods	Lung, bronchus, trachea (ICD 2,3,4,6,7,8 47b, 162-164)	Painters & decorators Men 20-64 yrs (1931) 20-64 yrs (1951) 15-64 yrs (1961) 15-64 yrs (1971) Single women 15-64 yrs (1961) 15-64 yrs (1971)	NG NG NG NG NG NG	SMR (95% CI) 1.17 (NG) 1.49 (NG) 1.43 (NG) 1.39 (NG) 4.00 (NG) 4.08 (NG)	Age, sex, calendar year	Reference = all men, single women in the 3 or 5 year period under review; Based upon decennial occupational mortality analyses of the Registrar General of England and Wales (1851-1971); <i>Excluded from meta-analysis because of overlap with OPCS 1958, 1971, 1978 and lack of data to calculate confidence intervals for 1931 data</i>
OPCS (1986), no.6 Scotland, England & Wales 1979-80, 1982-83 UK	Men aged 20-64 in Great Britain who died during 1979-80 and 1982-83 Mortality of men aged 15-74 in England & Wales in 1981	Last full-time occupation recorded on the death certificate, coded by the OPCS 1980 occupational classification	Lung, bronchus, trachea (ICD9,162)	Painters, decorators, french polishers Men Male painters & decorators	779 NG	SMR (95% CI) 1.44 [1.34-1.54] 1.39 (NG)	Age, sex	In IARC volume 47 Reference = populations of Great Britain, England & Wales, or Scotland as appropriate; Female mortality was from England & Wales only; Data from 1981 were questionable and thus excluded
OPCS (1995), no. 10 Bethune (1995) England & Wales 1976-89 UK	Men from the 1971 & 1981 census cohorts who died between 1976-89	Occupation from death certificates linked to census data and coded using the 1970 Classification of Occupations and the University of Southampton 'job groups'	Lung, bronchus, trachea (ICD8,9 162)	Painters & decorators age 20-64 yrs age 65-74 yrs age ≥ 75 yrs	NG NG NG NG	SMR (95% CI) 1.51 (1.22-1.85) 1.55 (1.05-2.20) 1.42 (1.00-1.95) 1.64 (1.06-2.42)	Age, sex, calendar year	In IARC volume 98 Reference = general population

Mikkelsen (1980)	2601 male painters belonging to two Copenhagen painters' unions followed for lung cancer incidence	Membership in painters' union	Lung, bronchus, trachea (ICD8 [162])	Painters	NG	SIR (95% CI) 1.1 (NG)	Age	In IARC volume 47 Reference = all Copenhagen males > 30 years of age <i>Excluded from meta-analysis because of overlap with Pukkala et al (2009).</i>
Denmark								
1971-75								
Scandinavia								
Olsen & Jensen (1987)	12,166 male incident cancer cases from the Danish Cancer Registry were linked with employment records	Longest employment held from pension fund registries, coded using ISIC	Lung, bronchus, trachea, primary cancer (ICD7 162)	Painters in the construction industry	79	SPIR (95% CI) 1.49 (1.19-1.85)	Age, calendar time	In IARC volume 47 Reference = Danish population; No information on smoking habits available. An earlier study showed that 60-80% of Danish men, aged 30-59 years, smoked; SPIR approximates the SIR when the cancer under investigation constitutes a minor part of all the malignancies included in the study and when exposure has no effect on cancer risk in general. <i>Excluded from meta-analysis because of large overlap with Pukkala et al (2009).</i>
Denmark								
1970-79								
Scandinavia								

Englund (1980); Engholm and Englund (1982)	30,580 members of the painters' union were followed up (through 1971 for cancer incidence and through 1974 for mortality) by record linkage with the Swedish Cancer Registry and the yearly death registers of the Swedish Central Bureau of Statistics, respectively.	Membership in the painters' union; 1960 population census	Lung, bronchus, trachea (ICD7&8, 162)	Painters	124 81	SMR (95% CI) 1.27 [1.06-1.51] SIR (95% CI) 1.28 [1.01-1.59]	Age, calendar year	In IARC volume 47 Reference = Swedish males; There is substantial overlap between these cohorts. <i>Excluded from meta- analysis because of overlap with Pukkala et al (2009).</i>
Sweden 1966-74 Scandinavia	Cancer incidence was also assessed through linkage of 1960-73 Cancer Registry data with the 1960 Population Census. 25,805 of these painters reported being in the building trade in the 1960 population census.		Lung , bronchus, trachea (ICD7, 162- 162.1)	Painters/house-building only	202	1.30 [1.13-1.49]		
Carstensen <i>et al</i> (1988) Sweden 1961-79 Scandinavia	1 622 547 Swedish men in the 1960 national census, aged 30-64 years and gainfully employed, were linked to the Swedish Cancer Registry and followed for cancer incidence from 1961-79	Occupations and industries were obtained from the 1960 census and coded using ILO standards. Smoking data were obtained from a large survey among an age-stratified random sample of the Swedish population in 1963	Trachea, bronchus, lung (ICD7 162.0, 162.1, 163)	Painters and paperhangers	425	SIR (95% CI) 1.01 (0.88-1.16)	Age, place of residence, smoking (indirect adjustment)	In IARC volume 98 Reference = ; Swedish males; It is likely that paperhangers work in the same job environment as painters or may also paint, and it is reasonable to consider this category as a whole as "painters". <i>Excluded from meta- analysis because of overlap with Pukkala et al (2009).</i>

Skov <i>et al</i> (1993) Denmark 1970-80, Finland 1971-80, Norway 1961-84, Sweden 1961-79 Scandinavia	87 004 economically active, male painters and lacquerers included in the national census of 4 Scandinavian countries were followed-up for cancer incidence by linking individual records with national cancer registries	Painters were identified by combining census codes for occupation and industry	Lung, bronchus, trachea (ICD7 162.0,1)	Painter	1043	SIR (95%CI) [1.30 (1.22-1.38)]	Birth cohort, sex, site	In IARC volume 98 Reference = economically active census population or total population in same region (Sweden only); <i>Excluded from meta-analysis because of overlap with Pukkala et al (2009).</i>
Andersen <i>et al</i> (1999) Denmark 1971-87, Finland 1971-90, Norway 1971-91, Sweden 1971-89 Scandinavia	65 868 male and 2121 female painters and wallpaper hangers, aged 25-64 years at 1970 censuses, were followed-up for cancer incidence during 1987-91 by linkage to national cancer registries	Occupation was obtained from census data and coded according to national adaptations of the Nordic Occupational Classification or according to a special Danish nomenclature.	Lung, bronchus, trachea (ICD7 162)	Painters and wall paper hangers Men Women	[1463] 1450 13	SIR (95%CI) [1.22 (1.16-1.29)] 1.22 (1.16-1.28) 1.55 (0.83-2.65)	Age, sex, time period	In IARC volume 98 Reference = national populations; The Swedish component partly overlaps Brown <i>et al</i> (2002) who also included painters from the 1960 Swedish census. <i>Excluded from meta-analysis because of overlap with Pukkala et al (2009).</i>
Brown <i>et al</i> (2002) Sweden 1971-89 Scandinavia	People in the painting trades or painting industry (42 433 male painters and 6662 male and 2136 female pictorial artists) obtained from 1960 and 1970 Swedish census data were linked to the Cancer Environment Register to follow-up for cancer incidence from 1971-89	Job title and industry were obtained from census data and coded using Swedish occupational codes.	Lung	Male painters (classified either in 1960 or 1970)	548	SIR (95%CI) 1.2 (1.1-1.3)	Age, sex, calendar year	In IARC volume 98 Reference = national population; Lung cancer risk was not increased among artists; <i>Excluded from meta-analysis because of overlap with Pukkala et al (2009)</i>

Pukkala <i>et al</i> (2009) <i>in press</i>	15 million people aged 30-64 years in the 1960, 1970, 1980/1981 and/or 1990 censuses and the 2.8 million incident cancer cases diagnosed in these people in a follow-up until about 2005 were linked to Nordic national registries	Occupation from self-administered census questionnaire, coded using ISCO codes adapted to Nordic countries	Lung, bronchus, trachea (ICD7, ICD9, ICD-O-1-3)	Painters Men Norway 1971-1991 smoking adjusted Women	[3465] 3418 260 47	SIR (95%CI) [1.24 (1.20-1.28)] 1.23 (1.19—1.28) 1.38 [1.22-1.56] 1.52 (1.34-1.72) 1.90 (1.40—2.53)	Country, sex, age, period smoking adjusted	Reference = national populations; Estimated 69.1% of Norwegian male painters smoked; Nordic Occupational Cancer (NOCCA) project; <i>Update of Andersen et al (1999)</i>
Scandinavia								
Enterline & McKiever (1963); Guralnick (1963)	Men aged 20-64 who died in the USA in 1950	Usual occupation and industry recorded from death certificates, coded using International Occupational Classification	Lung, bronchus, trachea, primary cancer (ICD6 162)	Painters and plasterers White Non-white	118 113 5	SMR (95% CI) 1.51 [1.25- 1.81] 1.57 [1.29-1.89] NG	Age, race	In IARC volume 47 Reference = 1950 US census population
USA 1950			primary and unspecified primary or secondary cancer (ICD6 162, 163)	Painters (construction), paperhangers, glaziers White Non-white	212 200 12	1.67 [1.45-1.91] 1.65 [1.43-1.90] NG		
Dunn & Weir (1965)	Prospective study of >68,000 men working in 'suspicious' occupations (12,512 painters and decorators) followed for an average of 7 years to determine causes of mortality, as assessed by linkage to California death records; unexposed group = public utility electric workers, excluding workers employed in suspect jobs	Men were enrolled based on their occupation, identified through unions and mailed questionnaire (85% response rate)	Lung	Painters & decorators smoking adjusted	91 91	SMR (95% CI) 1.29 [1.04-1.59] 1.14 [0.92-1.40]	age age, smoking	In IARC volume 47 Reference = Total male population of California; Public utility employees not engaged in suspect job classes were used as a smoking control group because their smoking pattern closely resembled the general California male population; Specific occupations studied had fewer nonsmokers and more heavy smokers than did the smoking control group.

Menck & Henderson (1976) Los Angeles County, California, USA 1968-70	Pooled mortality and morbidity data of 2,161 deaths from lung cancer in and 1,777 incident cases of lung cancer among white males aged 20-64, identified from the LA County Cancer Surveillance Program Records	Last occupation from death certificates and surveillance registry files, coded using the 1970 US Census occupational classification system	Lung, bronchus, trachea	Painter	87	SMR (95% CI) 1.58 [1.27-1.95]	age	In IARC volume 47 Reference = all occupations; Morbidity and mortality data were pooled because of the high mortality rate of lung cancer and the relatively high accuracy of death certification regarding lung cancer (45 deaths + 42 incident cases)
Petersen & Milham (1980) California, USA 1959-61	Death certificates of 3558 painters in California	Occupation from death certificate	Lung	Painters, except construction and maintenance	NG	NG; Excess of lung cancers observed compared to expected.	Age, year of death	In IARC volume 47 <i>Excluded from the meta-analysis due to lack of information and possible overlap with Dunn & Weir (1965).</i>
Whorton <i>et al</i> (1983) San Francisco/Oakland SMSA, California, USA 1976-1978	2200 painting union members (2197 men, 3 women) linked to the California Tumor Registry	1976-77 union membership files	Lung, bronchus, trachea and pleura (ICDO1 162)	Painter	15	SIR (95% CI) 1.99 [1.12-3.30]	Age, sex, year	In IARC volume 47 Reference = mid-year SMSA California population
Dubrow & Wegman (1984) Massachusetts, USA 1971-73	34,879 white men > 20 years old	Usual occupation from death certificate, coded using SIC codes	Lung, bronchus, trachea (ICD8 162)	Painters grouped shipyard	110 9	SMOR (95% CI) 1.31 [1.08-1.58] 2.61 [1.19-4.95]	age	In IARC volume 47 Reference = 25% random sample of death files, excluding cancer and liver & liver cirrhosis; SMOR is equivalent to an exposure odds ratio from a case-control study using dead controls, standardized by age

Matanoski <i>et al</i> (1986) California, Missouri, New York, Texas, USA 1975-79	Mortality of 57175 white male painters and allied tradesmen currently or formerly members of a painters' union for ≥ 1 year during 1975-79; 33,098 men from "mixed" locals were primarily or exclusively painters	Painters' union records from local chapters	Lung, bronchus, trachea (ICD8, 162)	Painters, construction and maintenance	448	SMR (95% CI) 1.18 (1.06-1.32)	Age	In IARC volume 47 Reference = US white males; The union represents most unionized painters in the US; members of "mixed" locals consisted primarily or exclusively of painters; <i>Excluded from meta-analysis because later updated by Steenland & Palu (1989)</i>
Stockwell & Matanoski (1985) New York State, USA, 1975-79 Nested case-control study	124 incident male lung cancer cases identified from the New York State Cancer Registry and 371 non-cancer controls randomly selected from union membership files and stratified by birth date and geographical region	Occupation from union records and questionnaire	Lung, bronchus, trachea (ICD8, 162)	Painter ever/never usual trade union specialty never wore a respirator wore a respirator yes or no respirator	52 51 37 NG NG NG	RR (95% CI) 2.57 (1.34-4.94) 2.75 (1.45-5.21) 3.17 (1.43-7.05) 5.45 (1.01-29.33) 1.14 (0.34-3.79) [1.94 (0.73-5.16)]*	none none none Age, education, smoking, beer drinking, asbestos exposure, geographical region	In IARC volume 47 No significant differences in smoking habits were found when comparing smoking characteristics in painters and non-painters; <i>Excluded from meta-analysis because overlaps with Matanoski et al (1986) and later updated by Steenland & Palu (1989); *Calculated using a fixed effects model.</i>
Hrubec <i>et al</i> (1995) USA 1954-80	1178 painters were followed during 1954-80 within a cohort assembled from a roster of approximately 300 000 white male WWI veterans who served in the US Armed Forces some time during 1917-40 and who held active government life insurance policies	Mailed questionnaire that inquired about tobacco use, usual industry of employment and occupation, coded using 1950 Census Occupation and Industry codes	Respiratory system (ICD7)	Painters, Construction and maintenance Not construction and maintenance	36 4	SMR (95% CI) 1.1 [0.77-1.43] 1.2 [0.33-3.07]	Smoking, age, calendar time	In IARC volume 98 Reference = US white males

Alexander <i>et al</i> (1996) Seattle, WA, USA 1974-94	2429 chromate exposed workers employed ≥ 6 months in the aerospace industry during 1974-94 were assembled from company work-history records; 62% had ever worked as a painter; incidence follow-up 1974-94 with linkage to the SEER registry; median 42 yrs of age	Exposure to chromium [VI] was estimated from industrial hygiene measurements and work-history records; cumulative exposure to chromium [VI] = years in each job x TWA for each exposure category	Lung	Entire cohort Painter (years worked) 0 < 5 ≥ 5	SIR (95% CI) 15 0.8 (0.4-1.3) 9 1.1 (0.5-2.0) 3 0.8 (0.2-2.4) 3 0.4 (0.1-1.2)	Age, sex, race, calendar year	In IARC volume 98 Reference = Puget Sound population during 1974-94; No information on smoking; no trend with cumulative exposure to chromium VI but slightly positive trend with duration of employment as a sander/polisher; small numbers preclude conclusions
Boice <i>et al</i> (1999) Lockheed Martin Plant Burbank, Los Angeles county, California, USA 1960-96	1216 painters (1139 men, 77 women) employed ≥ 1 yr in the aircraft industry, followed-up retrospectively for mortality	Detailed job history was obtained from work history cards	Lung, bronchus, trachea (ICD9, 162)	Painter	SMR (95% CI) 41 1.11 [0.80-1.51]	Age, sex, race, calendar year	In IARC volume 98 Reference = California worker and general US populations; Other cancer causes non-informative due to small numbers of deaths; painting not described in detail except that paints contained chromates. There is a possible small overlap with Dunn & Weir (1965) and Menck & Henderson (1976)
Steenland & Palu (1999) California, Missouri, New York, Texas, USA 1975-94	42 170 painters and 14 316 non-painters with ≥ 1 yr union membership were identified from union records and followed from 1975-94 by linkage to national and local registers; Restricted to white men (98% of the cohort).	Job titles were inferred from union membership records which identified the specialty affiliation and trade of the local union for all members	Lung	Painter	SMR (95% CI) 1746 1.23 (1.17-1.29)	Age, calendar time.	In IARC volume 98 Update of Matanoski <i>et al</i> (1986) Reference = general US population; No information on trade of individual members; SRRs compared painters to non-painters;

Pronk <i>et al</i> (2009) Shanghai, China 1996-2005 Asia	71,067 never smoking women that held a job outside the home; aged 40-70 years; identified through resident offices in 7 representative urban communities; average 4.1 years prospective follow-up for mortality & cancer incidence by linkage to Shanghai Cancer Registry and in-person biennial contact; 219 lung cancer diagnoses; >92% participation rate	In-person interview to obtain detailed lifetime occupational histories for each job held >1 year; coded according to the 1986 Chinese National Standard Occupational and Industry Codes Manual	Bronchus or lung (ICD-9 162.0-162.9)	Painter (construction, automotive industry, and other users)	6	HR (95% CI) 2.0 (0.9-4.5)	Passive smoking, family history of cancer, education age, passive smoking (smokers excluded), education level, family history of lung cancer	Risk increased with duration of employment & time since 1 st employment. *information obtained by contacting authors
				≥ 26 years since 1 st employment	NG	3.1 (1.4-7.0)		
				Years employment*				
				0	213	1.0 (ref)		
				<10	1	0.83 (0.12-5.90)		
				≥10	5	2.75 (1.12-6.73)		
<20	5	2.17 (0.89-5.31)						
≥20	1	1.36 (0.19-9.75)						

Abbreviations: CI, confidence interval; HR, hazard ratio; ICD, International Classification of Diseases; RR, relative risk; SIR, standardized incidence ratio; SMR, standardized mortality ratio; n.e.c., not elsewhere classified

Supplemental Material, Table 2. Case-control studies of lung cancer among persons with occupation as a painter, arranged by geographical region and publication date.

Reference, Location, Time period	Characteristics of cases	Characteristics of controls	Exposure Assessment	Exposure	No. of exposed cases	OR (95% CI)	Adjustment for potential confounders	Comments
Ronco <i>et al</i> (1988) Italy 1976-80 Europe	126 men who died from lung cancer; 77% participation rate	Random sample of 384 men who died from causes other than from smoking-related or chronic lung diseases; matched by year of death and age (± 10 yrs); 78% participation rate	Lifetime occupational history from interview with next of kin; coded using ILO classification	Painter	5	1.33 (0.43 – 4.11)	age, year of death, smoking, other employment in suspect high-risk occupations	In IARC volume 47
Jahn <i>et al</i> (1999); Bruske-Hohlfeld <i>et al</i> (2000)	686 women, ≤ 75 yrs of age at diagnosis, of German nationality;	712 female and 3541 male population controls randomly selected from population registries or by random digit dialing, individually (BIPS study) or frequency (GSF study) matched to cases by sex, age, and region. Response rate 60% BIPS, 41% GSF [45% overall]	Standardized questionnaire with full occupational history and supplementary job-specific modules, administered during a face to face interview; jobs coded according to the classification of the German Statistical Office (Statistisches Bundesamt)	Ever painters (women)	13	3.0 (0.73–12.33)	Smoking, asbestos, education, age, region of residence	In IARC volume 98 Low response rate among controls with potential for selection bias; frequency matched cases and controls of the GSF-study were post-hoc stratified according to the matching variables age, region ; *fixed effects model used to calculate a weighted average; These studies have substantial overlap with Kreuzer (2001, 2002) that presented results for painters in lifetime non-smoking men [2.31 (0.57-9.47)] and women (OR=1.2), respectively. BIPS study overlaps with Jöckel <i>et al</i> (1998)
BIPS study in Bremen area and Frankfurt/Main area (Germany) 1988-93	3498 men, ≤ 76 yrs of age at diagnosis, living in Germany for at least 25 years, resident in the study region;			Ever painters/ lacquerers (men)	147	1.42 (1.05–1.92)		
GSF study in Nordrhein-Westfalen, Rheinland-Pfalz and Bayern, Saarland, Thuringen, and Sachsen (Germany) 1990-96 Europe	100% confirmed by histology or cytology. Response rate 63% BIPS, 77% GSF [73% overall]			Ever painters/ lacquerers (men and women)	[160]	[1.47 (1.09-1.97)]*		
Pohlabeln <i>et al</i> (2000) 12 centres in Germany, Italy, Portugal, Sweden, UK, France and Spain 1988-94	650 non-smoking cases (509 women, 141 men)	1542 non-smoking controls (1011 females, 531 males); Community based controls in 6 centres, hospital controls (diseases not related to tobacco smoking) in 5	In-person interview for lifetime occupational history, coded using ISCO and ISIC classification; non-smokers = subjects who smoked < 400	Ever painters (men)	6	1.84 (0.59–5.74)	Age, centre	In IARC volume 98 This is the only case-control study of non-smokers sufficiently large to study occupational exposures. Controlling for other confounders (occasional

Europe		centres and both community and hospital-based controls in 1 centre.	cigarettes during their lifetime					smoking, residence in urban/rural area, dietary habits, ETS) did not change the estimate. There is a small overlap with Jahn <i>et al</i> (1999), Bruske-Hohlfeld <i>et al</i> (2000), Richiardi <i>et al</i> (2004)
Bouchardy <i>et al</i> (2002)	9106 men from cantonal Cancer Registries, aged 25 or more (and 65 or less in St Gall and Vaud)	49028 male non-lung cancer registrants from the same registries and period	Longest, current or most recent occupation as recorded at the time of registration (main or best specified occupation in Zurich Registry), coded using the ASCR Classification of Occupations	Plasterers and painters (in the construction industry)	273	1.1 (1.0–1.3)	Age, registry, civil status, period of diagnosis, nationality, urban/rural residence, socioeconomic status, histological confirmation, information from death certificate only (cases)	In IARC volume 98 OR adjusted for all variables except socioeconomic status was 1.4 (95% CI 1.2-1.6). Adjusting for SES may over-adjust for occupational risk factors but serve as a surrogate for smoking. Overall 95.1% microscopic confirmation for all sites.
Europe								
Richiardi <i>et al</i> (2004)	956 men from active search in all hospitals of the study areas; aged less than 75; response rate: 86% in Turin, 72% in Eastern Veneto; all cases histologically or cytologically confirmed	1253 male population-based controls, matched by study area, 5-year age groups; response rate: 85% in Turin, 74% in Eastern Veneto	Lifetime occupational history obtained from interviewer-administered questionnaire, coded using ISCO and ISIC codes	Ever painters small cell carcinoma Construction painters Painters, n.e.c.	62 4 42 20	1.7 (1.1–2.8) 5.2 (1.2-23) 1.7 (1.0-3.0) 1.7 (0.8-3.7)	Age, study area, smoking (never, ex-, active smokers), number of job periods, education	In IARC volume 98 OR adjusted for all variables but education 2.0 (1.4-3.3)
Europe								
Baccarelli <i>et al</i> (2005)	540 (474 men, 66 women) autopsy cases from the St Petersburg central pathology laboratory, serving 88 state hospitals in the study area. Occupational records retrieved for all cases.	582 (453 men, 129 women) individuals with autopsy-based diagnoses of non-cancer and non-tobacco related conditions, frequency matched by sex, age, area, year of death (20 painters). Occupational records retrieved for all controls.	Lifetime occupational histories were obtained from personal records (“Green Book”), coded based on ISCO and ISIC classification	Ever painters < 10 years ≥ 10 years	10 6 4	0.6 (0.3–1.4) 0.5 (0.2–1.5) 0.8 (0.2–3.0)	Age, sex, smoking	In IARC volume 98 Post-mortem examinations were conducted in about 95% of decedents. Information on smoking was abstracted from medical records at local health centres, but neither the proportion of success nor the quality of data assessed were stated. Occupational histories from the “Green Books” are reported to be complete.
Europe								
Zeka <i>et al</i> (2006)	223 never smoking cases (48 men, 175 women)	1039 non-smoking controls (534 men, 505 women)	In-person interview to obtain lifetime	Painters Men	6 0	[1.81 (0.72-4.59)] NG	None None	Never smokers = smoked <100 cigarettes in lifetime;

Czech Republic, Hungary, Poland, Romania, Russia, Slovakia, United Kingdom 1998-2002 Europe	diagnosed at participating centers; 20-74 years; lived in the study area for ≥ 1 year; 100% confirmed by histology or cytology; 86% participation rate	women); selected from patients that did not have malignant neoplasms, respiratory diseases, or other smoking related disorders or selected from healthy individuals in the general population (Warsaw, Liverpool only); 85% participation rate	occupational histories for jobs held ≥ 1 year; jobs coded by ISCO or NACE	Women	6	1.8 (0.53-6.0)	sex, age, study center	Painters were classified as working in construction, automotive industry and other users
Coggon <i>et al.</i> (1986) Cleveland, Humberside, Cheshire counties, UK 1975-80 United Kingdom	738 male bronchial cancer cases, aged 18-54 yrs, identified from hospital and cancer registry records	1221 other cancers	Occupation from mailed questionnaire	Painters and decorators	20	1.3 [0.62-2.72]	age, smoking, residence, respondent	In IARC volume 47 52.1% overall response rate; The variance was doubled to approximate an adjusted 95%CI. The unadjusted 95%CI was 0.78-2.18. <i>Included in the analysis restricted to case-control studies but excluded from the combined meta-analysis because of possible overlap with OPCS (1986).</i>
Kjuus <i>et al.</i> (1986) Norway 1979-83 Scandinavia	176 male incident lung cancer cases (ICD 162-163), < 80 years; 99% response rate	176 age-matched hospital controls excluding those with physical or mental handicaps, poor general health, or diagnosed with chronic obstructive lung disease; 99% response rate.	Interview and worksite records for longest job held; coded using Nordic Classification of Occupations; Exposed if worked ≥ 3 years	Painting, paper-hanging (occupation) Paints, glues, lacquer (exposure)	5 17	1.7 (0.4 - 7.3) 1.2 (0.6 – 2.6)	Age, smoking	In IARC volume 47
Wynder & Graham (1951) St. Louis, MO, USA, NG United States of America	Subset of 200 cases from a Hospital Chest Service from a total of 709 US male cases of confirmed cases with epidermoid, undifferentiated or unclassified lung cancer	200 controls with a chest disease other than lung cancer from the Hospital Chest Service	Lifetime occupational history from interview	Painter ≥ 5 years within the last 40 years	11	[5.76 (1.41-23.44)]	None	In IARC volume 47 The chest diseases were not specified. Only 2 painters were nonsmokers (smoked < 1 cigarette/day for >20 years). Cases and controls were of similar age and economic status.

United States of America	rates: 94% for cases and 95% for controls						rate	
Swanson <i>et al</i> (1993)	3792 males (2866 white, 926 black) from Occupational Cancer Incidence Surveillance System/Metropolitan Detroit Cancer Surveillance System (participant in SEER), aged 40-84 years; 100% histologically confirmed.	1966 males (1596 white, 370 black) with colon and rectal cancer, registry-based; 100% histologically confirmed.	Life-time occupational and smoking history obtained during telephone interviews with subjects or their surrogates. Jobs coded using US Bureau of Census classification	Painting machine operators: White males <i>Employment (years)</i> 0 1-9 10-19 20+ Black males <i>Employment (years)</i> 0 1-9 10-19 20+ <i>p for trend</i> Black and White <10 yrs ≥10 yrs <20 yrs ≥20 yrs	88 23 6 17 12 17 7 10 40 40 53 27	1.0 1.1 (0.5–2.4) 0.6 (0.2–2.2) 3.9 (1.2–13.0) 1.0 1.5 (0.4–5.6) 9.9 (0.9–109.2) 8.7 (0.9–89.3) ≤ 0.05 [1.19 (0.61-2.34)]* [2.23 (1.05-4.73)]* [1.15 (0.65-2.04)]* [4.62 (1.61-13.31)]*	Age at diagnosis, pack-years of cigarette smoking	In IARC volume 98 Interviews with surrogates: 56.1% for cases, 29.5 % for controls; Unexposed group: selected occupations and industries with little or no exposure to carcinogens. > 90% overall response rate; <i>This paper does not represent an independent set of cases and controls, but is a re-analysis of a sub-group reported in the study of Burns & Swanson (1991). Therefore it was omitted from the overall meta-analysis but kept for the analysis by duration.</i> *Calculated using a fixed effects model.
Morabia <i>et al</i> (1992)	1793 male cases from 24 hospitals; 100% confirmed by histology; response rate not given. Number of cases that were painters not given.	3228 controls not hospitalized for lung cancer but including tobacco related conditions; matched by age, race, hospital, smoking history, admission date; response rate not given.	Standardized questionnaire, administered during a face to face interview. Only “usual” occupation recorded, plus exposure circumstances to up to 2 agents out of a list of 44 (study period 1980-4), or up to 6 agents (study period 1985-9); Jobs coded using US Bureau of Census classification	Painters	[13]	0.8 [0.32-2.03]	Age, geographic area, race, smoking, study period	In IARC volume 98 The variance was doubled to approximate an adjusted 95%CI. The unadjusted 95%CI was 0.41-1.54.
American Health Foundation study								
United States of America								
Muscat <i>et al</i> (1998)	365 black men and 185 black women with histologically confirmed lung carcinomas recruited from teaching hospitals	251 male and 135 female black patients admitted to teaching hospitals for conditions unrelated to tobacco use, matched by	Interviewer-administered questionnaire. Only “usual” occupation and whether the job entailed regular exposure to an	Ever painters Men Men (no overlap) Women	[24] 30 [19] 5	[1.32 (1.30-1.35)]* 0.7 (0.3–1.1) [0.68 (0.29-1.59)] 1.8 (0.3–12.3)	Age, education, smoking	In IARC volume 98 Response rate: over 90 % overall (no specific rate by gender or case-control status given); The study partially

				Adenocarcinoma	2	0.5 (0.1–2.5)		
Wünsch-Filho <i>et al</i> (1998)	398 cases (307 men, 91 women) from 14 hospitals, living in the metropolitan area of Sao Paulo; 100% confirmed by histology or cytology	860 controls (546 men, 314 women) hospitalized for non-tobacco related conditions, matched by age, sex, hospital	Standardized questionnaire with full occupational history, administered during a face to face interview	Ever painters (men) <i>Employed</i> ≥ 10 years ≥ 10 years and latency ≥ 40 years	128 82 70	0.77 (0.56–1.08) 1.29 (0.79–2.11) 1.28 (0.77–2.15)	Age, sex, hospital, smoking, cancer in family, migration history, socioeconomic status	In IARC volume 98
Sao Paulo, Brazil 1990-91								
South America								
Pezzotto <i>et al</i> (1999)	367 male newly diagnosed primary lung cancer patients from three medical institutions of Rosario City; mean age 60.3 ± 9.5; 100% histologically confirmed	586 hospital based males controls admitted for a non-smoking related disease at the same hospitals for traumatic conditions, urological diseases, acute surgical conditions, and other illnesses, matched by age (± 3 years); mean age 60.1 ± 10.2 yrs	Standardized questionnaire with lifetime occupational history for each job held > 1 year.	House painters Squamous cell Adenocarcinoma	4 2 1	2.4 (0.4–19.4) 3.3 (0.4–52.9) 1.3 (0.1–30.7)	Age, smoking habit, lifelong cigarette consumption	In IARC volume 98 Unexposed group: never employed in occupations involving exposure to agents classified in group 1, 2A or 2B of the IARC Monographs. Individuals who had more than two jobs were excluded from the study.
Rosario City, Argentina 1992-98								
South America								
Matos <i>et al</i> (2000)	200 male cases from four hospitals in Buenos Aires, residing in the town or province of Buenos Aires; 94.5% confirmed by histology or cytology; response rate 93%	397 male controls hospitalized for non-tobacco related conditions, residing in the town or province of Buenos Aires, matched by hospital and age; response rate 99%	Face to face interview using standardized questionnaire for full occupational history, coded using ISCO/ISIC; Further details requested for occupations held > 1 year.	Ever painters general blowtorch	16 8	1.2 (0.5–2.4) 1.4 (0.5–4.4)	Age, hospital, smoking (pack-years), other occupations with significant ORs ($p < 0.05$)	In IARC volume 98
Buenos Aires, Argentina 1994-96								
South America								
De Stefani <i>et al</i> (2005)	338 male patients from four major hospitals in Montevideo, aged 30-89 years; response rate 96.8% (338 subjects); 100% histologically confirmed; restricted to lung adenocarcinomas.	1014 males hospitalized for conditions not related to tobacco smoking, matched by age, residence and urban/rural status; response rate 95.7%	Interviewer-administered questionnaire with lifetime occupational history.	Ever painter <i>Employment (years)</i> 1–20 21+ <i>p for trend</i>	26	1.8 (1.0–3.1) 9.6 (2.6–36.0) 1.2 (0.6–2.2) 0.07	Age, residence, urban/rural status, education, smoking status and years since quitting and age at start, number of cigarettes per day.	In IARC volume 98 Hospital controls: 20.3% eye disorders, 18.3% fractures, 17.9% abdominal hernias, 11.0% injuries, 7.9% acute appendicitis, 7.2% diseases of the skin, 5.8% varicose veins, 3.9% hydatid cyst, 2.9% blood disorders, 2.6% urinary stones and 2.2% osteoarticular disorders.
Montevideo, Uruguay, 1994–2000								
South America								
Levin <i>et al.</i> (1988)	733 incident male cases, aged 35-64, identified	760 age-matched	Lifetime occupational history from interview,	Ever painter duration (yrs)	15	1.4 (0.5 – 3.5)	Age, smoking	In IARC volume 47 * The variance was doubled

China 1984-85	through the Shanghai Cancer Registry	population controls	classified according to the Chinese population census	0 < 10 10-19 20-29 ≥ 30	718 7 2 5 1	1.0 (ref) 1.9 [0.36-16.60]* 2.8 [0.07-62.47]* 2.2 [0.26-26.67]* 0.3 [0.01-5.81]*		to approximate an adjusted 95%CI. #calculated using a fixed effects model
Asia				> 10 < 20 > 20	8 9 6	[1.34 (0.26-6.92)]# [2.35(0.44-12.47)]# [1.18 (0.18-7.64)]#		
Notani <i>et al</i> (1993) Bombay, India 1986-90 Asia	246 male patients from Tata Memorial Hospital in Bombay; age not given; 98% histologically confirmed	212 male hospital-based controls diagnosed with cancers of the mouth (n =160) and oro- or hypo- pharynx (n=27), and non- cancerous oral disease (n=25), frequency matched by age and community; age not given	Interviewer-administered questionnaire with life- time occupational history.	Ever painters	6	1.62 (0.4–7.0)	Age, community, smoking (two groups)	In IARC volume 98 Descriptive characteristics and response rate for cases and controls not given. Further analysis for painters using a “not-exposed” group of watchmen, policemen, semi- skilled/unskilled workers, office workers, teachers, salesmen, small business employees resulted in an OR of 1.84 (95% CI, 0.4-8.5)
Bethwaite <i>et al</i> (1990) New Zealand 1980-84 Oceania	4224 male cases had known occupation among 5031 cases identified from the New Zealand Cancer Registry, aged 20 or more at registration; % microscopic confirmation not given	15 680 male non-lung cancer registrants with known occupation, [out of 19731 identified] from the same Registry and period, aged 20 or more at registration; % microscopic confirmation not given	Current/ most recent occupation as recorded at the time of registration and smoking history obtained through telephone interview, coded using NZSCO	Painter decorators, steel and other construction painters, car painters, spray painters, signwriters, other unclassified painters	88	1.12 (0.93–1.52)	Age	In IARC volume 98

Abbreviations: ETS, environmental tobacco smoke; NG, not given; OR, odds ratio; CI, confidence interval; ASCR, Association of Swiss Cancer Registries; SIC, Standard Industrial Classification; SOC, Standard Occupational Classification; ISCO, ISIC; NZSCO, New Zealand Standard Classification of Occupations; NACE, Nomenclature Générale des Activités Économiques dans les Communautés Européennes

Supplemental Material, Table 3. Proportionate mortality studies of painting and lung cancer, arranged by geographical region and publication date.

Reference, location	Cohort description	Exposure assessment	Organ site (ICD code)	Exposure categories	No. of cases/deaths	PMR (95% CI)	Adjustment for potential confounders	Comments
Terstegge <i>et al</i> (1995) The Netherlands 1980–92 Europe	9812 Dutch male painters deceased during 1980–92, identified from a registry	Painters were obtained from a registry with which nearly all commercial painters are affiliated	Lung, trachea, bronchus, pleura, thymus, heart, mediastinum, less defined parts of respiratory tract (ICD 162–165)	Commercial painters	1480	1.20 (1.14–1.26)	Age, time period	In IARC volume 98 Reference = proportion of lung cancers among all deaths within the Dutch male population during 1980–1992
OPCS (1958) England & Wales 1949–53 United Kingdom	Registered deaths of men and women aged ≥65 yrs in the broad occupational category of painters and decorators	Occupation at time of death or last occupation from death certificates; Occupations coded according to the Census 1951, Classification of Occupations	Lung, bronchus, trachea, primary cancer (ICD6 162)	Other painters & decorators Men Aerographers, paint sprayers	461 5	1.30 [1.18–1.42] 1.67 [0.54–3.90]	Age, sex	In IARC volume 47 Reference = mortality rates of painters taken from the 1951 national census
OPCS (1971) England & Wales 1959–63 United Kingdom	Registered deaths of men and women aged 65–74 in England and Wales	Last occupation recorded on the death certificate?	Lung, bronchus & trachea (ICD7 162, 163)	Painters & decorators Men (15–64 yrs) Men (65–74 yrs) Single women Aerographers, paint sprayers Men (15–64 yrs)	728 849 1 98	1.22 [1.13–1.31] 1.31 [1.22–1.40] 1.81 [0.05–10.08] 1.48 [1.20–1.80]	Age, sex	In IARC volume 47 Reference =
OPCS (1978), no.1 England & Wales 1970–72 United Kingdom	Registered deaths of 277,168 men, aged 15–64	Last occupation recorded on the death certificate, as coded by the 1970 Classification of Occupations	Lung, bronchus, trachea (ICD8, 162)	Painters & decorators Painters, decorators n.e.c.	847 728	1.25 [1.17–1.34] 1.22 [1.13–1.31]	Age	In IARC volume 47 Reference = proportions of all deaths in the population of England & Wales during 1970–1972; The occupation unit of ‘painters and decorators’ was comprised of aerographers, paint sprayers; painters, decorators n.e.c.; coach painters

OPCS (1986), no.6 UK (Scotland, England & Wales) 1979–80, 1982–83	Men aged 20–64 and married women aged 20–59 in Great Britain during 1979–80 and 1982–83	Last full-time occupation recorded on the death certificate	Lung, bronchus, trachea (ICD9,162)	Painters, decorators, French polishers Men Women Other spray painters, males Painters & decorators nec French polishers	779 128 34 226	1.21 [1.13– 1.30] 1.33 [1.11–1.58] PRR (95% CI) 1.56 [1.08–2.18] 1.25 [1.09–1.42]			In IARC volume 47 Female mortality was from England & Wales only PRR indicates the differences in the proportions of all cancer registrations for a given occupation attributable to particular sites
United Kingdom	Men aged 15–74 in England & Wales in 1981			Painting, assembling, & related occupations nec (women) 15–74 yrs of age 20–74 yrs of age	21 39	1.79 [1.11–2.74] PCMR (95% CI) 1.01 [0.72–1.38]			
OPCS (1995), no. 10 Roman & Carpenter (1995) England, 1981–87	Men, aged 20–74 years, England 1981–87	Occupation recorded at the time of cancer registration/death	Lung, bronchus, trachea (ICD9 162)	Painters & decorators Other spray painters	1664 213	PRR (95% CI) 1.08 (1.03–1.14) 1.11 [0.97–1.27]	Age, social class, region of registration		In IARC volume 98
United Kingdom									
OPCS (1995), no. 10 Winter (1995), Coggon (1995) England & Wales 1979–80, 1982–90	29 689 male painters and decorators, aged 20–74 years, who died during 1979–80 or 1982–90, linked to census denominators	Last full-time occupation was obtained from death certificates	Lung, bronchus, trachea (ICD9 162)	Other spray painters Painters & decorators Coach painters	557 4110 69	PMR (95% CI) 1.26 (1.16–1.37) 1.12 (1.09–1.16) 0.87 [0.68–1.10]	Age, social class		In IARC volume 98 Data for 1981 were omitted because of questionable quality
United Kingdom									
Peto <i>et al</i> (1995) England, Wales, Scotland 1979–80, 1982–90	British painters, aged 16–74 years, who died during 1979–80 and 1982–90 were obtained from a UK register	Last full-time occupation was obtained from death certificates	Mesothelioma	Male painters and decorators	100	PMR (95% CI) 1.31 [1.07–1.59]	Age, calendar year		In IARC volume 98 This study partially overlaps with the Registrar General's report (1996); <i>Mesothelioma excluded from the meta- analysis</i>
United Kingdom									
Enterline &									Overlaps with Guralnick

McKiever (1963)						(1963)								
United States of America														
Chiazze et al (1980) USA, 1970–76	226 deceased white male spray painters from a cohort of workers in 10 automobile assembly plants	Complete work history from plant records	Lung, bronchus, trachea (ICD8, 162)	Spray painter	21	PMR (95% CI) 1.41 [0.87–2.15] OR (95% CI)	Race, sex, age, cause of death	In IARC volume 47 Reference was general population where each plant is located						
United States of America	Nested case–control study using 263 lung cancer deaths among white males and 1001 controls deceased from circulatory system disease or accidents, matched by age (± 2 years) and plant			Ever	21	1.43 [NG]								
				≥ 1 year	16	1.36 [NG]								
				≥ 3 years	13	1.29 [NG]								
				≥ 5 years	11	1.15 [NG]								
Dalager (1980) USA 1959–77	202 deaths in white male spray painters among 977 male painters employed ≥ 3 months and terminated employment at one of 2 large aircraft maintenance plants between 1949–59; followed up for mortality through 1977 (deaths certificates 90% complete)	Occupation	Respiratory organs (ICD7, 160–164)	Painters	21	PCMR (95% CI) 1.84 [0.90–2.23]	Age, time	In IARC volume 47 Primer paints used were primarily chromium base compounds, especially zinc chromate, but epoxy paints were also used; Reference calculated using cancer mortality for US white males. *Calculated using a fixed effects model						
United States of America				Years employed										
				<5	9	1.25 [0.57–2.37]								
				5–9	6	1.50 [0.55–3.26]								
				≥ 10	6	1.88 [0.69–4.08]								
United States of America				<10	15	[1.34 (0.77–2.34)]*								
				Milham (1983) USA 1950–79	Death records of 429,926 men and 25,066 women in Washington state. Deaths of 5287 painters, 832 paperhangers and decorators (painters), 428 body/fender repairmen and auto painters	Occupation from death certificate			Lung, bronchus, trachea (ICD6-8 162)	Painters, mainly construction and maintenance	251	PMR (95% CI) 1.21 [1.06–1.37]	Age, calendar time	In IARC volume 47 Findings presented for white males (95% of study population).
				United States of America					Bronchus and lung (ICD6-8 162.1, 163)	Age 20–64 years	103	1.12 [0.91–1.36]		expected: The age-adjusted number of deaths that would have occurred in a specific occupation and cause-of-death group, if that occupation had the same mortality experience as the entire cohort
										Auto painters & body/fender repairmen	39	1.48 [1.05–2.02]		
Age 20–64 years	29	1.84 [1.23–2.64]												
Paperhangers and decorators (painters)	50	1.40 [1.04–1.85]												
Age 20–64 years	21	1.39 [0.86–2.12]												
Miller <i>et al</i> (1986) USA	630 white male painters were identified from a	Artists were identified from obituaries	Lung	Artistic painters	17	PCMR (95%CI) 0.8 (0.4–1.7)	Race, sex, age, calendar time	In IARC volume 98 Total number of cancer deaths						

United States of America	registry of death certificates of 1757 artists deceased during 1940–69							for all sites combined was used as the comparison group. The PMR for lung cancer was not significantly elevated.
Wang <i>et al</i> (1999) North Carolina, United States United States of America	All male construction workers who lived and died in North Carolina during 1988–94	Usual occupation was obtained from coded death certificates	Lung	Painters, paperhangers, plasterers	NG	PMR (95%CI) 1.18 [1.01–1.35] (p<0.05)	Gender and race	In IARC volume 98 No confidence intervals or number of deaths provided.

Abbreviations: OPCS, Office of Population Censuses and Surveys; n.e.c, not elsewhere classified; NG, not given; SPIR, standardized proportional incidence ratio; CI, confidence interval; ILO, International Labor Office and the United Nations Statistical Office; ISCO, International Standard Classification of Occupations; ISIC, International Standard Industrial Classification; NG, not given; PCMR, proportionate cancer mortality ratio; RR, rate ratio or relative risk; SIC, Standard Industrial Classification; SIR, standardized incidence ratio; SMR, standardized mortality ratio; SMSA, Standard Metropolitan Statistical Area; TWA, time-weighted average; PRR, proportional registration ratio

Supplemental Material, Table 4. Definitions of occupations involved in painting trades.

Occupation	Definition
Aerographers, paint sprayers	Persons applying paint, enamel or lacquer by spraying excluding those spraying glass or ceramics.
Coach painters	As described.
Other painters & related occupations	Sign painters, poster painters, scene painters, vehicle painters and spray painters, other occupations related to paint
Painter, Construction and Maintenance	Paint walls, equipment, buildings, bridges, and other structural surfaces, using brushes, rollers, and spray guns. May remove old paint to prepare surface prior to painting. May mix colors or oils to obtain desired color or consistency.
Painters, decorators n.e.c.	Persons preparing surfaces and applying paint, enamel or lacquer other than by spraying; sign writing; wall papering; french polishing. Decorators of glass and ceramics are excluded.
Painters, decorators	Those in the building industry are dedicated to achieving two main objectives - to provide the final finishing to buildings and to protect surfaces from dirt and damp.
Plasterers & painters	Plasterers, stucco plasterers, building painters, paperhangers
Painters, paperhangers	Painters and paperhangers apply finishes to walls, ceilings, and other surfaces. Although painting and paperhanging are two separate trades, many workers have mastered both. Painters apply paint, varnish, and other finishes with brushes, rollers, and spray machines.

Abbreviations: n.e.c., not elsewhere classified

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