Abstract Book

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conazole among Farm

French[1]; [1]University of North
orth Carolina A&T State

armers applying propiconazole to peach
d using tape-strips applied to the stratum
ropiconazole was normalized by keratin
ured using an OSHA Versatile Sampler
mixing, loading, and application. The
ectrometry in electron impact ionization
o 2.2 μg/m³ and dermal exposure levels
The breathing-zone concentrations and
lation was observed between breathing-
87). The total-body propiconzole dose,
timated dermal dose (non-detectable to
g/kg bw/day), ranged from 0.01 to 12.0
rmers in this study indicate that dermal
e type of personal protective equipment
amount of propiconazole detected on
etection (20 fmol/μl) on sampled skin
face mask were used. Rinsing of hands
emove propiconazole from the exposed
emphasize the importance of wearing
thing, such as long sleeves or coveralls

Among Skilled Craftsmen in

P.S. Chapman[1] P.R.D.
).J. Paustenbach[2] [1] ChemRisk,

asbestos-related disease for different
stos in non-manufacturing occupations
available literature on this topic, and
sis of asbestos-related disease among
itial review of the literature included
entified. Studies were included in a
opulations, source of mortality data,
xposure, latency period, and possible
y setting (shipyard vs. non-shipyard)
sults of each analysis yielded relative
s indicated that, not surprisingly, the
served among workers with the most
s employed in Naval shipyards, and
elative risks were also observed for
s in the construction industry, where

sprayed asbestos or insulation removal activities often occurred. Despite some limitations, the results of this analysis were generally consistent with prior estimates of asbestos exposure for various craftsmen in different occupational settings.

Abstract 301
Worker Exposure to Methanol Vapors during Cleaning of Semiconductor Wafers in a Manufacturing Setting: Results of a Simulation Study

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The purpose of this study was to characterize occupational exposure to methanol for persons who cleaned wafers in the semiconductor industry. Work activities were simulated based on historical accounts. Personal samples and samples in the immediate workspace were collected to characterize near field vapor concentrations; samples collected three to four feet and 10 to 20 feet away characterized far field concentrations. The first simulation involved wafer cleaning during which approximately 12 ounces of methanol was volatilized over eight hours at a distance of approximately 16 inches from the breathing zone. The second scenario simulated two workers cleaning wafers simultaneously where a total of 26 ounces of methanol were volatilized over 8 hours. The 8-hr TWA airborne concentration of methanol for the worker in the first simulation averaged 60 ppm. During the second simulation, the average personal TWA was 118 ppm. The average concentration measured at about four feet from a single worker was 27 ppm, and 73 ppm when two workers used methanol simultaneously. For the workroom, the concentrations averaged 18 ppm and 48 ppm with one and two persons performing this task, respectively. In addition to the amount of methanol used, changes in the room ventilation rate were found to markedly influence both the near field and far field concentrations. The results suggest that the use of methanol to clean semiconductor wafers, for the conditions tested, even without local exhaust ventilation and with relatively low room ventilation rates is unlikely to result in exposures that exceed the current PEL of 200 ppm. This study also confirmed prior estimates that when a point source is located in the near field, the concentration in the breathing zone is approximately two to three fold greater than the room concentration when the air exchange rate is about 5-10 air changes per hour.

Abstract 320
Benzene Exposures of Dock Facility Workers Serving a Refinery and Chemical Plant: 1977-2005

T. E. Widner[1], S. H. Gaffney[1], A. F. Javier[2], J. M. Panko[2], J. R. Marshall[3], L. E. Booher[4], D. J. Paustenbach[1]; [1]ChemRisk, Inc., San Francisco, CA, [2]ChemRisk, Inc., Pittsburgh, PA, [3]ExxonMobil, Baton Rouge, LA, [4]ExxonMobil, Fairfax, VA

Benzene is a natural constituent in crude oil. Potential exposure of refinery workers to benzene has been studied for many years. In this study, we evaluated benzene exposures of workers at a refinery dock facility over the period from 1977-2005. The dock facility in this evaluation handles product from the refinery and a nearby petrochemical facility. As a result, the workers are potential exposed to a wider range of benzene-containing materials than a typical refinery worker. In this analysis, workers were categorized using job and task descriptions. The results of nearly 1,000 industrial hygiene air samples were evaluated including 382 long term (≥ 120 minutes) and 374 short term (< 120 minutes) personal samples. The long term samples indicated that airborne concentrations vary significantly across dock worker job classes and are dependent on short duration tasks and activities. The job category Tankerman was associated with the highest potential

benzene exposure, averaging 2.3 ppm. The job category Dock Operator/Berthman/Assistant Operator had the lowest average potential benzene exposure (0.06 ppm). Short term samples indicated that the highest potential exposures resulted from the disconnecting of cargo loading hoses. Overall, the long term personal air samples indicated that exposures of the past 30 years were generally below the PEL of 1 ppm (average 0.3 ppm), and have trended downward over the years. Recognizing the potential for benzene exposure, workers at the facility use respiratory protective equipment during selected tasks and activities. Thus, adjusting for the use of respirators resulted in a further reduction of mean short term exposure levels for dock workers by 31%. This study provides a job- and task-focused analysis for occupational exposure to benzene during dock facility operations that can be insightful for understanding exposures at this as well as other similar facilities since about 1975.

Abstract 336

Fine Particles (PM2.5), Noise, and Job Strain as Predictors of Hypertension and Heart Disease Among Blue-Collar Aluminum Manufacturing Employees

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Introduction

Employees in manufacturing settings are exposed to a wide range of potentially toxic exposures simultaneously, including air pollution, noise, and job strain. The Alcoa Aluminum Manufacturing Cohort provides a unique opportunity to examine multiple work-related exposures, and interactions among these, in the development of chronic disease over time.

Methods

Using weighted logistic regression models with quadratic correction for age, we examined a range of work-related stressors including job status (i.e., hourly/ salaried, job grade) and individual socioeconomic position (i.e., education, race/ ethnicity, sex) as risk factors for hypertension and heart disease in a cohort of 14,999 aluminum manufacturing employees in 11 plants across the eastern U.S. Job strain measures (demand/ control) were collected by external report at the job level. $PM_{2.5}$ and noise exposure matrices are now being developed for blue-collar employees, which will be explored using hazard models. Propensity scores were applied to differentiate employment from selection effects.

Results

Traditional risk factors (age, sex, race, and smoking) were the strongest predictors of hypertension and heart disease among white-collar employees; among blue collar workers, years on the job was the strongest predictor. Among male employees, age and race were predominant risk factors; whereas the strongest risk factor among women was blue-collar employment. Increasing control indicates decreased risk of hypertension, while middle ranges of demand confer higher risk. Results were supported after adjustment by propensity scores.

Conclusion

Years on the job may be a surrogate for hazardous workplace exposures (physical, chemical, or psychosocial), associations which will be explored in upcoming months. These workplace exposures may outweigh traditional risk factors for manufacturing employees. Further analyses will seek to identify specific exposures and exposure combinations which increase disease risk, and will further examine observed high risks for female blue-collar employees.

Abstract 353

Job Strain Factors Associated wit Bridge Painters

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Background: The objective of this study wa and blood lead levels (BLL) among bridge were monitored during the workday over a Methods: Each participant completed the Jo scores were calculated for psychological d were dichotomized into high and low categ exposure to airborne lead was assessed for in conjunction with time-activity diaries co collected from each participant at the start a were used to evaluate the effect of job strai and cumulative airborne lead exposure.

Results: Participants had a mean age of 33. <1 to 33 years (median=3.3 years), and we period. The mean change in BLL was 1.7 u that those with high decision latitude have decision latitude (0.9 vs. 2.3 ug/dl, p=0.1(among those with high social support co ug/dl, p=0.07). There was no difference in low psychological demands (1.6 vs. 1.8 u

Conclusions: Our findings suggest that d with changes in BLL. Further analyses w predictors of change in BLL among bridg

Abstract 363

Examination of Worker Ability History and Industrial Process Manufacturing Workers

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Many occupational exposure reconstru exposures and experiences, with little reporting becomes exceedingly importar are of poor quality or do not exist. Dete recall their occupational history could b in occupational epidemiology. The ove accurately recall their work history over t the methodology that was developed in accuracy. An interview style survey inst information and an individual's self r included date specific job title/grade, pl of these. A work history matrix was dev work history matrix broke down the que A model was constructed to estimate re interview gathered data is examined re facility, age, marital status, and numbe