1397 APPLIED OCCUPATIONAL HEALTH AND SAFETY ASSESSMENT SYSTEM (OHSAS18001) FOR HEALTH RISK ASSESSMENT OF WORKERS AT GASOLINE STATIONS

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Introduction Working in areas where benzene (human carcinogen) is contaminated in the environment is considered a risky operation. The previous research at gasoline stations found that refuelling workers had occupational exposure to benzene. However, quantitative exposure assessment to benzene has been mostly pointed for cancer. If look at the level of opportunity to be exposed to benzene, there need to be considered other factors, such as compliance with work instructions, PPE use, equipment standards and OHSAS18001 is a good guideline on risk assessment accounting these principles. This study aimed to quantify the risk level using the OHSAS 18001 model of risk assessment in fueling and cashier workers and the located different stations of urban, sub-urban and rural area.

Methods A study was conducted at gasoline stations in different zones of Khon Kaen province, Thailand. There were 237 refuelling workers and 25 cashier workers included into this study for data collection via subject interviews using a structural questionnaire, observations and information of exposure levels of benzene. Risk assessment matrix from applied OHSAS18001 (opportunity x severity) was suitable performed.

Results Majority of refuelling and cashier workers were at moderate exposure to benzene (64.98% and 72.00%), and most areas found that to the moderate exposure was in the sub-urban zone (75.74%), followed by urban (57.14%), and rural zone (51.02%). The health risk of fueling and cashier workers on benzene exposure was rising to be the high level. Considering location of gasoline, the high risk level was predominantly found in sub-urban area.

Conclusions This applied OHSAS18001 matrix showed that workers are at high risk of exposure to benzene at gasoline station which confirms the previous report of the highest concentration of benzene in sub-urban area. There should be the preventive measure among these workers following risk levels and occupational risk assessment should be included.

896 WORKING WITH ENGINEERED NANOMATERIALS: WHAT'S THE OCCUPATIONAL PHYSICIAN'S ROLE?

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Introduction Nano-electronics has a huge potential for society. Some nano-electronics productional processes use nanomaterial in various forms. However, the knowledge about occupational health surveillance for employees working with nanomaterials does not seem to follow the rapid pace of innovation. Therefore, NanoStreeM, a European Consortium, sheds light on medical follow-up in nano-workers with the semiconductor industry as an example.

Methods A survey about the current practices of medical supervision of persons handling nanomaterials has been conducted in 6 international semiconductor industrial companies.

A literature search for existing guidelines, reports and articles about occupational exposure and medical surveillance concerning all sorts of nanomaterials was performed.

Results Survey: Registration of employees working with nanomaterials takes place in only one company. Because of differences in legal requirements per country and the fact that nano-workers are mostly followed for exposure to chemical risks rather than for nano-materials, medical follow-up is not well established. Clinical examination and spirometry, blood analysis and urine biomonitoring, X-ray and ECG are respectively performed in three, two and one company.

Search: 15 guidelines/reports and 18 articles could be retained. All were published between 2008 and 2016. Generally they state that there is insufficient evidence for nanospecific surveillance, however exposure registries and general medical surveillance as early warning system are recommended. Medical screening for now is only recommend for:

- Carbon nanotubes and nanofibers by means of spirometry and baseline X–Ray
- Nanomaterial composed of a compound that is already subject to medical screening

Discussion General medical surveillance and exposure registries of nano-workers are advised, yet not always performed. Medical screening is necessary for carbon nanotubes and nanofibers or nanomaterial of which working with the bulk material requires screening. Experimental studies are needed to establish suitable biomarkers. Besides epidemiological studies are necessary in order to specify the recommendations for occupational health physicians.

104 THE IMPACT OF ACID MIST ON DENTAL HEALTH IN ELECTROPLATING WORKERS

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Introduction The oral cavity is one of the first place to expose to occupational hazards in work environments, such as inorganic acid mist. There was few researches concerning the relationship between dental disorders and occupational hazards. The aim of this study was to determine the association of acid mist exposure with periodontal status and dental caries.

Methods The study population of 304 workers was recruited from four factories in Taiwan (151 acid mist exposed workers and 153 controls). Personal, medical and occupational history were collected by interviews and questionnaire. Dental status was examined by well-trained dentists and using Decayed-missing-filled-teeth (DMFT), Community Periodontal Index of Treatment Needs (CPITN) and Loss of attachment (LA) as indices of dental health.

Result Of the acid mist exposed group, 95.4% and 57.5% had high CPITN scores and LA scores, and 87.6% and 40.5%