Abstract

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Workers exposure to respirable crystalline silica dust at selected coal fired power stations in Bethal, Mpumalanga province, South Africa

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Abstract

Workers in coal-fired power stations engage in a range of work tasks or processes which may involve handling or exposure to respirable dust, including coal dust or coal fly ash. Recent studies have shown that crystalline silica exposure remains one of the detrimental concerns in mining, construction and general industry. A quantitative study was conducted to determine employee's level of exposure to respirable crystalline silica at a coal fired power station in Mpumalanga Province, South Africa. A total of 34 employees participated in the study. The study revealed that the male employees were most predominant in the coal handling plant as compared to the females. 81.2% (n=27) of the respondents were found to be males while 18.8% (n=7) were found to be females. The study determined the mean exposure value of 0.969 mg/m3 for respirable coal dust which was found to be below the recommended occupational exposure limit (OEL) of 2 mg/m3 as set by the Department of Labour (DoL). While the study determined the mean exposure value for crystalline silica as 0.184 mg/m3 which was found to exceed the recommended OEL of 0.1 mg/m3 as indicated by the DoL. Results from this study confirms occupational exposure to crystalline silica, which is a well-established hazard in mining, therefore, use of personal protective equipment should be recommended.
Keywords: occupational exposure, crystalline silica, coal dust, exposure levels.

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Biography

Martha is a registered EHP with the Health Professions Council of South Africa. She is a holder of a Bachelor of Science Degree in Environmental Health. She also have an MBA in Environmental and Energy Management from Twente University. She completed an Honors in Leadership at the University of Johannesburg. She is currently registered for a PhD in Public Health at Witwatersrand University focusing on Occupational Health injuries. She was involved in the creation and content development on the online Master of Public Health at the University of Johannesburg. Currently she is an Online Facilitator on the Sample Abstract Template Master of Public Health at the University of Johannesburg. She has been an Adjunct lecturer at the Witwatersrand University and MANCOSA for more than three years. She has published papers on occupational and environmental health in internationally accredited journals. She has supervised more than 16 Masters Students to completion in her career. Her niche area of research is occupational and environmental health. She also involved with research that is focusing on how artificial intelligence is impacting occupational and environmental health. She was recently recognized as one of the top fifty influential women in Science, Technology, Engineering, and Mathematics (STEM) in South Africa for her contribution in the subject matter.

