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Evaluation of Occupational Noise Exposure in a Lubricants Blending Plant at Pulau Indah, Selangor

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Structured Abstract

Background: Unwanted sound created by tools and manufacturing process instruments that run at a specific volume and can impair hearing is referred to as occupational noise. The manufacturing sector exposes its employees to noise-induced hearing loss (NIHL) due to the large number of machines and equipment employed in the workplace. Lubricants blending facility is also considered as noise-contributing workplace of manufacturing sector.

Methods: Noise level area monitoring was conducted by using Larson Darvis Sound Level Meter (SLM) following the requirement of IEC 61672-1:2013, ANSI S1.4-2014 Class 1 standards. Next, personal noise monitoring was taken using doseBadge5 noise dosimeter for 3 different workers for their entire work shift.

Results: Area noise monitoring was carried out to determine the noise level in selected working areas, which are A, B and C of lubricants blending plant. It was discovered that 10 out of 17 samples were below the excessive noise level, which is conservatively set at 82 dB(A). Furthermore, the study results revealed that 7 out of 17 samples exceeded the suggested excessive noise level while remaining below the noise exposure limit (NEL), which is set above 82.0 dB(A) and below 85.0 dB(A). Among all the samples, P15 has the lowest noise level measurement, 65.3 dB(A), whereas P17 has the highest, 84.3 dB(A). Next, personal noise monitoring was conducted among 3 selected workers in working areas of A, B and C where 2 of them were above the NEL, which is set above 85.0 dB(A) but below the limit of Maximum Exposure Limit (MEL) of 115.0 dB(A). Lastly, the pattern of noise mapping produced at the selected areas in the lubricants blending factory in Pulau Indah, Selangor was successfully described.

Conclusion: The noise level produced from various noise sources in working areas of A, B and C at lubricants blending plant have been found and documented through area monitoring and personal monitoring.

Keywords: Noise, NIHL, NEL, excessive noise level, manufacturing

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