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INTRODUCTION

Noise hazard - one of the most often reported hazards in the workplace⁴. Continuously being exposed to excessive noise in the workplace can lead to occupational noise-related hearing disorders (ONRHD)³. According to DOSH, 7941 cases of ONRHD were recorded in Malaysia during 2020³. Therefore, DOSH enacted some regulations to identify and reduce the risks.

RELATED REGULATIONS

1. Factories and Machinery (Noise Exposure) Regulations 1989
2. Occupational Safety and Health (Noise Exposure) Regulations 2019
3. Industry Code of Practice (ICOP) for Management of Occupational Noise Exposure and Hearing Conservation 2019

MONITORING ANALYSIS: TOOLS

Sound level meter (SLM)
(requirement: IEC 61672-1)



Noise dosimeter
(requirement: IEC 61252)



Sound level calibrator
(requirement: IEC 60942)



PRE-ANALYSIS



Identify the noise hazard based on the Noise Hazard Identification Checklist published by DOSH and fill up with the options 'yes' or 'or'.

MONITORING ANALYSIS: PROCEDURES

AREA MONITORING

Identify noise at the workplace that can cause risks

1. Put the noise measuring tools 1m above the machine and floor level.
2. Take the measurements at different time
3. 3 measurements shall be taken at each time

PERSONAL MONITORING

Identify individual daily noise dose exposure

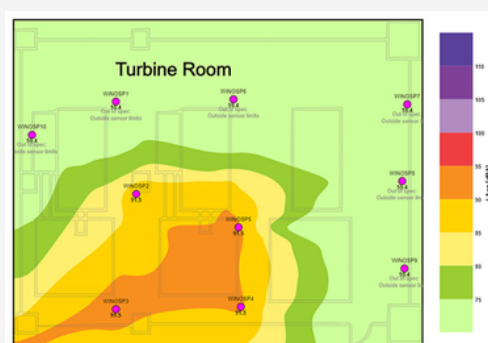


The microphone of dosimeter shall be fastened at the top of shoulder with 0.1 m distance from the ear canal. The microphone shall not be covered by clothes to avoid errors

AREA MONITORING

Noise mapping can be created from the collected data and categorize them into each color accordingly.

Sound Pressure Level	Colour zone
> 140dB(C)	Purple
> 115dB(A)	
> 85dB(A) to 115dB(A)	Red
> 82 dB(A) to 85dB(A)	Yellow
≤ 82dB(A)	White



POST ANALYSIS

PERSONAL MONITORING

Formula for daily noise exposure level

$$L_{EX,8h} = L_{eqTe} + 10 \log \left(\frac{T_e}{T_0} \right) \text{ dB(A)}$$

Formula for daily personal noise dose

$$\text{Dose} = 100 \times \frac{T_e}{8} \times 10^{\frac{L_{eq}-85}{10}} \%$$

LeqTe: continuous sound pressure level
Te: effective duration of the working day
T0: is the reference duration

REPORTING

Lastly, all the data shall be compiled into a risk assessment report and keep it. The report shall be available to the company management, safety and health committees and relevant authorities.

CONCLUSION

Noise level testing and monitoring is important in identifying that the workplace is safe to individual without exceed the permissible exposure limit. In addition, the measured value can also utilise in implementing suitable noise control measures

REFERENCES

1. Abdul Rahim, K. A., Jewaratnam, J., & Che Hassan, C. R. 2022. Identification of Noise Levels for Skill Training Activities, Equipment, Machines and Power Tools at TVET Institutes in Malaysia. International Journal of Environmental Research and Public Health, 19(23): 15783. [Noise level testing and monitoring is important in identifying that the workplace is safe to individual without exceed the permissible exposure limit. In addition, the measured value can also utilise in implementing suitable noise control measures.](#)
2. Department of Occupational Safety and Health Malaysia. 2019. Industry Code of Practice for Management of Occupational Noise Exposure and Hearing Conservation 2019. Department of Occupational Safety and Health Malaysia; Putrajaya, Malaysia.
3. Department of Occupational Safety and Health Malaysia. 2020. Statistik Kemalangan Dan Penyakit Pekerjaan Negara. Department of Occupational Safety and Health Malaysia; Putrajaya, Malaysia.
4. Mirza, R., Kirchner, D. B., Dobie, R. A., Crawford, J., & ACOEM Task Force on Occupational Hearing Loss. 2018. Occupational noise-induced hearing loss. Journal of occupational and environmental medicine, 60(9): e498-e501. <https://doi.org/10.1097/JOM.0000000000001423>