

Safety Measures for Industrial Noise Hazards

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Noise, or unwanted sound, is one of the most pervasive occupational health problems. It is a by-product of many industrial processes. With debut of industries we also get introduced to new process risks and hazards. Industrial Noise is one of them.

We at Liberty General Insurance Limited understand the importance of human safety against health and life-threatening risks arising due to noise conditions at a premise. We intent to suggest some measures to augment the same.



Overview :

Sound consists of pressure changes in a medium (usually air), caused by vibration or turbulence. These pressure changes produce waves that emanate away from the turbulent or vibrating source. "Noise" can be described as sound without agreeable musical quality or as an unwanted or undesired sound. Thus, noise can be taken as a group of loud, non-harmonious sound or vibration that is unpleasant and irritating to the ears. Occupational facilities across all sectors are subjected to some exposure of noise. The case exacerbates for manufacturing and industrial facilities where loud machines like compressors, presses, cutters etc. are being used. The effects from industrial are observed in long term.

Case Study :

Prevalence of occupational noise induced hearing loss in industrial workers:

A study was carried out over 100 industrial male workers, including officials, machinery operators, and helpers. ENT and audiometry examination were done, and noise level was measured. The age, noise level, duration of exposure, type of activity, and measurement of hearing loss were co-related. It was observed that 39% industrial workers who were exposed to noise level >87.3 dBA, for 8-12 h/day in textile and hard strip rolling mills despite noise free machine are recommended suffered from SNHL (sensorineural hearing loss).

Sound Exposure Categories:

Sound exposure can be classified into four categories:

- **Up to 80 dB:** Under this range, there is no risk for the ear, regardless of the duration of the sound exposure.
- **From 80 to 90 dB:** The risks are limited to very long exposures.
- **From 90 to 115 dB:** The danger zone: the louder the sound the less time is needed for damage to occur.
- **Above 115 dB:** Very brief sounds which can cause immediate and irreversible damage.



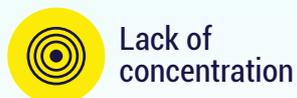
General industrial exposure of sound is in range of 85-110 dB. The Factory Rules (Model Factories Rules 120 (MFR 120) under Section 87) clearly states that, "In every factory, a suitable engineering control or administrative measures shall be taken to ensure, so far as it is reasonably practicable, that no worker is exposed to sound levels exceeding the maximum permissible noise exposure levels".

Occupational Noise Exposure

Exposure to high levels of noise causes hearing loss and other harmful health effects as well. The extent of damage depends primarily on the intensity of the noise and the duration of the exposure. Noise-induced hearing loss can be temporary or permanent.

Temporary hearing loss results from short-term exposures to noise, with normal hearing returning after a period of rest. Generally, prolonged exposure to high noise levels over a period of time gradually causes permanent damage.

General long-term effects of noise exposures include:



Control Measures:

There are various measures available for saving the occupants from the harmful effects of sound:

- Elimination:** The processes involving noise exposures can be removed; for instance, Job work can be assigned for certain processes to safeguard the overall premise.
- Substitution:** The world is moving rapidly with technical advancements; for instance, older versions of machines can be replaced with new machines complying with latest norms for better safety.
- Engineering controls:** Measures can be adopted for isolating the exposed environment using acoustic insulation material like glass/mineral wool. Regular maintenance practices also aid in maintaining the overall sound exposure from a machine.
- Administrative Controls:** Exposure to workmen can be controlled by regular shift movement in high exposure section as defined under Factory Rules. Noise level monitoring using noise dosimeters can also be adopted to have intimation and control over noise levels in machines which may increase with time. Noisy machines can be operated in odd shifts when there are less occupants in the premise.
- PPE (Personal Protective Equipment):** This is a minimal measure which can be adopted using equipment such as ear plugs, ear mugs, ear covers etc. can be used by the occupants.

Trivia

The World's Loudest sound was made by the Krakatoa volcanic eruption in the year 1883. The eruption was so loud that it ruptured the eardrums of people 60 kilometers away, and it traveled around the world four times. The people could hear eruption from 4828 kilometers away.

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